THE

# VETERINARY JOURNAL

MARCH, 1906.

## THE LATE MR. HENRY KING SHAW, F.R.C.V.S.

We regret to have to record the death, in his seventy-eighth year, of Mr. Henry Shaw, of Stamford Hill, one of the oldest members of the profession, and one of the best known and most respected London practitioners. Born in 1828, he commenced work as a blacksmith's apprentice at the early age of fourteen, and when, in due course, he became a master farrier, he speedily got together a good business to which was added, as was usual in those days, a certain amount of veterinary work. Not being contented, however, with this alone, Mr. Shaw determined to obtain the hall mark of the profession, and eventually (April 25, 1864) graduated from the London College. In 1891 he presented himself for the Fellowship Diploma and was successful. For more than half a century his name has been well known as a reliable and trustworthy practitioner in the North of London, and for many years he has held the position of Veterinary Inspector under the London County Council and the Local Authority; few men living at the present time have had more experience in the Government methods of dealing with pleuro-pneumonia of cattle and glanders of horses.

No man had the welfare of the profession more at heart, and it was a source of great pride to him that, during the past forty years, he had never once missed attendance at the October opening lectures of the London College. Until eighteen months ago he was regularly in harness, and during his long and painful illness, when he was unable to read himself, his chief pleasure was to have the current veterinary periodicals and literature read to him, almost up to the last week of his life.

# Editorials.

## THE SUPERVISION OF THE MILK SUPPLY OF LARGE CITIES.

In our last number we drew attention to a report by Dr. Collingridge, the Medical Officer of Health for the City of London, on the impure and insanitary conditions under which milk was supplied to the inhabitants of London ; and in the present issue we publish a report on similar lines from the Veterinary Inspector and Town Clerk, conjointly, of the City of Glasgow ; whilst in a still further column an abstract, quoted from the Annual Report of the Principal Veterinary Officer of the Agricultural Department of New Zealand, shows that a similar unsatisfactory condition exists elsewhere.

The inspection of meat and milk intended for the food of man forms one of the principal outlets towards which veterinary training in the future will have to be directed, and no one can doubt that the veterinary surgeon is the proper person to give opinions on these particular subjects. The chief difficulty in the way is that the veterinary inspector under the present regulations has scarcely sufficient power allotted to him, and in big cities it is too great a task under present conditions to personally inspect every herd from which milk is sent to a big city. As Mr. Trotter says in his report, there should be a clause in each Act, dealing with this subject, by which a dairyman consigning milk to, or selling milk in, a city should be compelled by law to notify to the corporation veterinary surgeon *all* cases of disease. Tuberculosis should not be the only one notifiable, but every disease of the cow used for milking purposes should be reported, particularly any disease of the udder.

An animal suffering from tuberculosis of the udder ought certainly to be marked down for slaughter and not, as at present, merely removed from one herd to another.

The necessity for a better method of handling the milk is especially drawn attention to by each writer at either end of the Empire, and regulations dealing with this should certainly be compulsory instead of merely optional. It is interesting, in reading the report from Glasgow and that from New Zealand, to observe that the regulations which each authority deems necessary are practically identical, and there certainly seems nothing either irrational or impossible in the requirements desired with regard to the common principles of hygiene and cleanliness.

The English deputation which recently visited the large Imperial dairy farms established in Hungary were particularly impressed by the great attention which was paid to these points, as not only were the milking cows groomed regularly as a matter of daily routine, but the sheds were kept as clean as a well-managed horse stable in this country, and especial facilities were afforded to aid the cleanliness of those employed to do the milking.

As regards the disposal of diseased cows, especially those known to have tuberculosis of the udder, the Town Clerk of

Glasgow particularly emphasises the necessity for an alteration to be made in an Act which allows a dairyman, whose milk is sold within the city and who has knowledge of the existence of tuberculosis in his animal, the loophole of disposing of it to some unwary neighbour, who will probably still retail the tubercle bacilli, and perhaps also set up a fresh infection in his herd. There cannot be two opinions but that the animal should be sent for slaughter and a fair compensation obtained for the owner.

There is no doubt that in the future a system of veterinary inspection for every dairy herd will become compulsory, whether the milk is sent to a large town or distributed in the country districts. It is only fair to the public who consume the milk that a proper supervision shall be exercised, and the man who holds a veterinary diploma is the only person properly qualified to exercise this protection in the interest of the public health. It is quite time that more efforts were made in this direction to obviate the slipshod manner in which these duties, except in a comparatively few instances, are carried out at present.

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## THE AFFILIATION OF VETERINARY COLLEGES WITH UNIVERSITIES.

IT is not only in England that strenuous efforts have recently been made to obtain the recognition of powerful universities for the scientific attainments of veterinary education, for Canada and Australia are now following close in the wake of what has recently been done in England.

The establishment of the respective degrees of Bachelor and Doctor in Veterinary Science will be of distinct advantage to the future generations of the profession, and the assistance afforded by free access to large museum collections and well-equipped laboratories, such as are to be always found as adjuncts to every well-equipped and rich university, must result in better facility for teaching and more extended knowledge on the part of the student. In Great Britain the Universities of London, Liverpool and Edinburgh have already led the way, whilst Dublin is expected to extend its help very shortly.

In Canada and Australia, as will be seen by an extract in our columns, a move is being made in the same direction.

There is a desire to place the Ontario Veterinary College under Government control, and to affiliate it with the University of Toronto, establishing thereby a Faculty of Comparative Medicine. In Australia the Government of Victoria have at present under consideration a scheme for taking over the Melbourne Veterinary College and affiliating it with the University there.

It is not too much to say that we of the veterinary profession in England are in sympathy with our colleagues in the Colonies on this question, and that we wish them every successs.

University education for the veterinary student must raise the standard of the profession and, in every way, be beneficial.

# Original Article.

## OBSERVATIONS ON THE "MARK VI." ·303 BULLET.

BY H. WATKINS PITCHFORD, F.R.C.V.S. F.R.S.E., LIEUTENANT-COLONEL COMMANDING THE VETERINARY DEPARTMENT OF THE NATAL MILITIA, SOUTH AFRICA.

THE tendency of the "Mark II." Service bullet to pass through even dense animal structures—such as bone—with a clean boring motion which results in the minimum of tissue disintegration, has been too well recognised to call for comment or investigation; this absence of disintegrating character—which is, of course, in direct relation to its "stopping" power—having been the subject of frequent remark during the late campaign in South Africa.

The Mark VI. bullet has, as will be seen, a less degree of cohesion than the Mark II., although considerable resistance seems necessary before the "setting-up" process becomes marked. Distortion both in the long and transverse axes of the bullet, with a distinct flattening of the point of the projectile, is possible without any tendency of the lead cone to leave its casing, or for the latter to strip or crumple. This seems particularly the case at the longer ranges of 1,000 yard upwards.

While the interposition of such substances as dry raw hide, 16-inch. deal planks, &c., in the line of fire was followed by no "set up" of the bullet, it was found that an average-sized sack (say 18 inches in diameter) of dry clayey loam not rammed, was sufficient to entirely arrest it, and cause considerable degree of "mushrooming," while about nine inches of green gum log (*Eucalyptus globulus*) produced a similar effect; a penetrability considerably under that as laid down for the present Service bullet, Mark II. The thickness of the copper-nickel casing in the Mark VI. bullet is said to be less than of the Mark II. as issued at present, but whether the difference in disrupting or expansive property lies here, or in altered weights or proportions of the metals entering into the composition of this casting or the core it embraces, seems immaterial to the present observations.

The following metrical differences have been observed between this bullet and the ordinary Service Mark II.:—

### WEIGHT OF BULLET.

The difference in the total weight of the two projectiles amounted to ·077 gramme (1·18 grains) in favour of the Mark IV., a preponderance made up chiefly in weight of core; the core of Mark VI. being proportionately to the case one-tenth heavier than that of Mark II.

The "setting up" properties of the bullet, particularly at the longer ranges of effective fire, cannot be considered marked, and are not comparable, for instance, to the explosive effect secured by, say, the Mauser or other sporting bullet of about the same calibre.

Where the Mark VI. projectile, at moderate ranges, impinges upon solid bone structure such as the shaft of a long bone, a marked explosive effect is generally produced, splintering the bone in all directions and producing a compound comminuted fracture of the worst type (fig. 1).

A similar result, however, does not always attend the impact of this bullet even upon dense bony structures at short ranges (as a skiagraph I enclose* will serve to prove). It is improbable that a lesion of this extent would have been sufficient to have stopped a horse receiving such a wound during the excitement of a charge.

Where soft tissues only are traversed, or flat bone offering but slight resistance to the passage of the projectile at point-blank range, the damage to the structure is not great, although the skin wound is distinctly larger and more rugged in nature than the clean aperture of entry.

FIG. 1.—Illustrating the explosive effect produced on a hard bone.

## OBSERVATIONS AT FIFTY YARDS RANGE.

At fifty yards the expanding effects are pronounced.

In the test case the point of entry was in the left scapulo-humeral angle. The bullet traversed the skin, muscle, intercostal space, and lobe of lung, and penetrated the flat expansion of right scapula in the postea-spinatus fossa, from within outwards. The area of impact

* This skiagraph, although a poor one, serves to show the bullet track as a fairly clean-punched hole passing through the solid humerus about the elbow-joint without fracture or dislocation of joint. [The skiagraph was, unfortunately, too indistinct to bear reproduction.—ED.]

FIG. 2.—The effect on a flat, thin bone well clothed with muscle, after the bullet has passed through the chest, &c. (see text. Horse three to four years old).

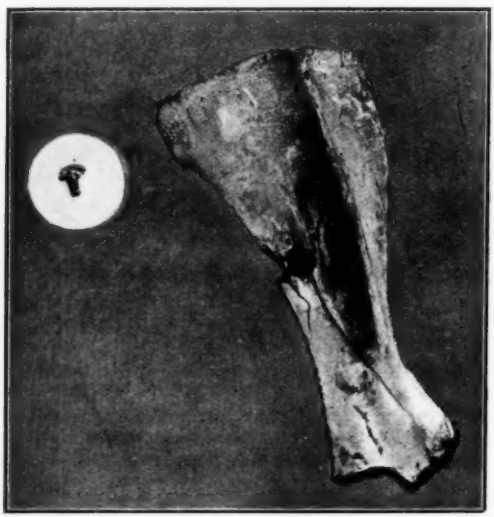

FIG. 3.—External surface of the same scapula as fig. 2; also illustrating the mushroomed appearance of the bullet.

(fig. 2) is surrounded by fissures cracking the bone in several directions, while the immediate point of the same shows loss of bony tissues (in irregular flakes) over an area of about 3·5 or 4 cm. The external face of bone on side of exit shows a cleaner and more punched-out appearance. The bone is cracked or fissured, notably on its outside surface, such fissures extending almost throughout the thick lower part of the neck, or unexpanded portion of the bone. Probably complete disintegration of this bone would have occurred in the more brittle scapula of an older animal (the test subject being in this case only three or four years of age, and its bones containing therefore a larger proportion of cartilaginous matter).

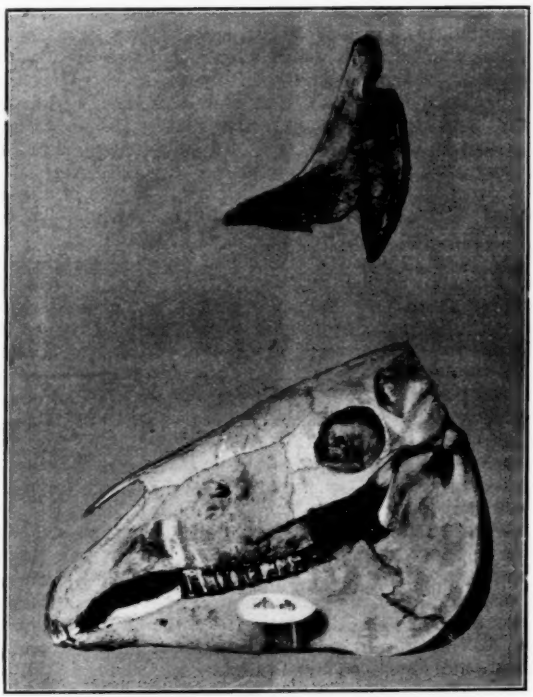

FIG. 4.—The pulverising effect upon the molar teeth.

The bullet as shown in photograph of external surface of scapula has "set up" to a considerable extent, the contents of the casing having escaped in a mushroom-shaped mass, leaving the nickel casing still attached, but hollow, throughout the length. The loss of bullet substance in producing this lesion at this range amounts to about ·35 gramme (5½ grains), which could not be recovered from the tissues.

The explosive effect of the projectile was marked upon the solid bones at this distance.

Fig. 4 shows the effect of the bullet upon the bony tissues of the

head. As far as could be judged, the actual point of impact in this case was in the region of the sixth or last molar tooth of the upper jaw. Both the fifth and sixth molars of the upper jaw were pulverised, as was the last molar tooth of the lower jaw.

The excessive force of the impact and "setting up" of the bullet has been sufficient to break the flat expanse of jaw-bone across its broad part (*vide* illustration). The bullet has then been deflected somewhat downwards, and impinged upon the inner surface of the lower jaw-bone, shattering its broad or posterior portions into fragments, and destroying the molar teeth. After great destruction of bone, as well as the soft structure at the base of the tongue, the projectile left the head by an aperture of exit remarkably small considering the force manifested, which latter would have seemed likely to have resulted in a much larger exit wound than that actually existing (approximately 1·5 cm., or $\frac{5}{8}$ inch, in diameter).

The fragment of bullet recovered from the sand-bag weighed 5·807 grammes (89 grains), of which 1·722 grammes (or 26 grains or about half its total weight) were composed of nickel casing (two crumpled fragments), the remainder consisting of a small irregular ball of lead.

There was thus a marked explosive effect on the tissues at this range, and disintegration of the bullet itself, probably due chiefly to the impact of the projectile on a body of such considerable density as the molar teeth of the horse.

A similar bursting or disruptive effect, differing markedly from the drilling or boring effect noticeable in the Service rifle bullet travelling at high velocity, is to be seen on reference to the accompanying photograph (fig. 5). The point of impact in this case was over the centre of the left main leg-bone or femur. Several inches of soft muscle, &c., lie over the bone in this region. The shaft of the left femur is shattered into many fragments, but both extremities or ends remain intact. The aperture of exit on the inside of the thigh is not large (approximately 1 cm.), nor that of entry on the inner face of the right thigh. The concussive effects, however, on this, the right thigh-bone, are much more marked, as will be seen from the number of fragments shown in the lower femur in the photograph.

This strongly formed bone has been completely disintegrated throughout the whole length of its shaft, while the solid extremity forming the head of the bone, though several inches from the actual point of impact, has been split into several large fragments. No external wound existed in this case, the force of the bullet becoming expanded, leaving its fragments lying loose amongst the shattered *débris* of bone and lacerated soft tissues.

The casing has stripped completely from the core, and broken itself into three crumpled pieces.

The anterior part ($\frac{1}{8}$) of the leaden core has become flattened into an irregular mushroom expansion, leaving about 6 or 7 cm. ($\frac{1}{4}$ inch) of the butt-end unaltered in general shape, upon which the stamp of the War Office remains visible.

The weight of these fragments is: casing 2·66 grammes, core 10·18 grammes, showing a loss of bullet substance in fragments too small to detect, of 16½ grains (1·08).

The loss of nickel casing in the production of this wound therefore amounts to about 7 grammes, or nearly $\frac{1}{5}$ of its weight; while the

core has lost only about 3 grammes ($\frac{1}{35}$) of its original (average) weight.

That such disruptive effect is not always produced on the bullet at this range was shown in the instance of a shot fired at twenty-five yards, which broke the large and solid bones of the pelvis into many fragments, left the body by a small wound of exit, and was recovered from the sand-bag slightly flattened at its apex, and markedly flattened in its transverse diameter, but showing no tendency to disintegration either of the core or casing. This bullet, therefore, can sometimes withstand an impact sufficient to produce considerable distortion of its general contour without any tendency to "setting up" or shortening of its long axis.

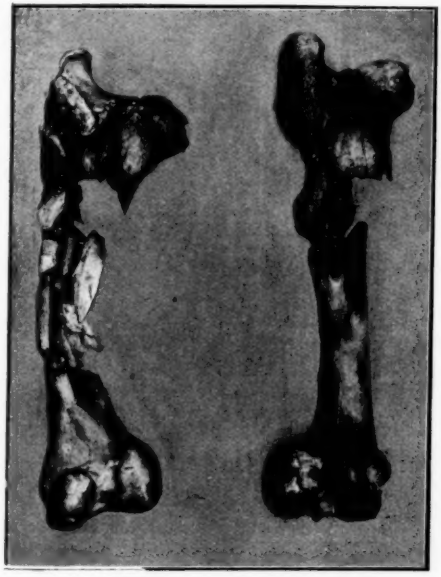

FIG. 5.—The effect upon the shaft of the femur.

This case formed a marked contrast with that of illustration by fig. 4, where the resistance encountered by the bullet was less, but the "setting up" considerable.

### OBSERVATIONS AT FIVE HUNDRED YARDS.

In observations made at longer ranges increasing difficulty was experienced in placing the wound in the best position required for studying its effect on the more solid tissues.

Soft tissues, such as wounds in the abdomen, did not oppose sufficient resistance at this range to cause any marked change of form in

the bullet, beyond a shortening of its long axis by about 1 mm. (or slightly under $\frac{1}{32}$ of its normal length) without perceptible increase in calibre.

The flesh wounds produced at this range were small and cleanly bored, passing through and generally leaving the tissues unlacerated. In one instance the damage to wall of intestine at exit point was large and ragged, but the exit hole on the surface was not noticeably larger than other wounds in a similar position, which consisted of a small track or puncture from entrance to exit.

This fact, which has been noticed in several other instances, goes to show that no direct and constant relation can be held to subsist between the size and shape of the wound of exit and the degree of displacement or laceration produced by the projectile in its passage through the deeper structures.

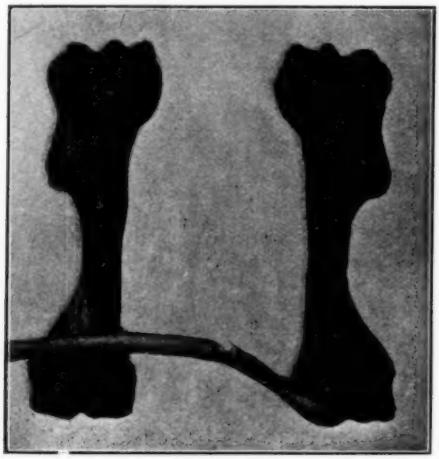

FIG. 6.—The effect upon the humerus and rib (see text).

In the accompanying photograph (fig. 6) the external appearance of the wounds, both of exit and entrance, were small and only discoverable after search. As is shown in the figure, the left humerus, or main bone of the forearm, has been fractured by a bullet passing across the front of the chest, fired at 500 yards range.

A curious point in this case is that the fracture is a clean one, showing no mark of impact, or loss of substance. The bullet has passed through the body of the long flexor muscle of the left forearm (coraco-radialis) without touching the humerus, but imparting sufficient shock to the bone to produce the clean sloping fracture seen on reference to the photograph. (The transverse line which is fine wire holding the bone together, should not be mistaken for the line of fracture.)

The right humerus, however—although the wound is a superficial

one—shows much more extensive damage. The point of impact shows as a cleanly punched channel, which, as the bullet leaves the bone, has become converted into a ragged and irregular cavity owing probably to the increasing "set up" on the bullet, and the decreasing support present towards the outside of the bone. This humerus has been broken into several large fragments, while the extreme shock sustained by the bone may be traced in the fissures which extend almost throughout the complete length of its shaft, even involving the massive head of the bone.

The bullet producing this wound was unfortunately not arrested by the sand-bags, and so was not recovered.

The expanding properties of the Mark VI. bullet are not always produced at this range, even where the bone is encountered, as is shown by the bullet in my possession. The casing is complete though much bent, and the core, though slightly extruding, at the base of the projectile, is complete. This bullet had passed between the ribs of the one side of the chest and through the soft viscera of the thorax, impinged upon one of the ribs of the opposite wall of the chest, tore its way through the substance of the bone, and left the body of the animal without any appreciable degree of "set up," as its length due to the bulging of the core at the base is appreciably longer (1 mm.) than the normal unfired bullet.

The fractured rib is shown in fig. 6, the bullet track being ragged and irregular, probably owing to a certain amount of distortion before its impact on the rib, or its deflection from the direct line of fire.

### At One Thousand Yards.

The majority of the wounds at this range were through soft tissues, and no striking lesions were produced by this bullet.

No ragged exit holes were found out of fifteen hits fired from 1,100 yards range by Capt. Lawrenson of the Militia Staff, the points of exit of such being with difficulty discernable. Laceration of the soft tissue was absent, and even where thin expansions of bony tissue were encountered by the bullet, a clean drilling or punching-out effect is noticeable, as in the case shown in fig. 7, where both rami of the jaw are perforated without splintering, or stellate fracture conditions different to those noticeable in fig. 4. Even where resistance was greater, as in the traversing of the bones of the face and base of the skull, the exit point on the right orbit is not marked by any great destruction of bony tissue.

Reference to fig. 7 will show the comparatively slight disorganisation of the hip-joint by the passage of the bullet at this range through the articulation itself. The head of the femur shows a shallow groove (not visible in the figure) corresponding to the passage of the bullet, the shock of which has cracked the bone along the dotted line while breaking the adjacent bone (the ischium) which partly forms the cavity of the joint. This bone is fractured cleanly, and not broken into fragments.

The appearance of splintering, or comminution, in the photograph is due to the smaller fragment of bone having fallen from its normal position, so exposing the fracture through its thickness.

A bullet passing through the very dense structure of the pedal

bone of the foot with its horny walls left the hoof by a small clean hole evidently without distortion of the shape of the projectile, and similarly a bullet which impinged upon the wing of one of the cervical vertebræ or neck-bones pierced it with but slight fissuring of the bone, and lodged immediately under the skin upon the opposite side of the neck without any appreciable alteration of its shape.

It would seem, therefore, that the expanding power of this bullet decreased in proportion to its velocity, and that at the longer ranges

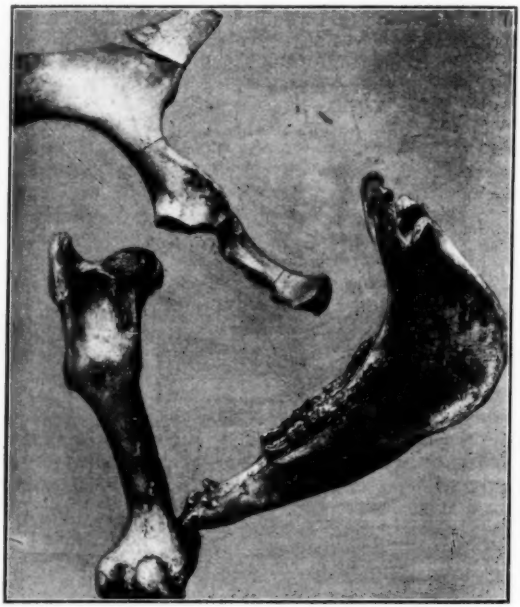

FIG. 7.—The effect when striking a joint (see text).

of 1,000 yards upwards its effects are similar to, if not identical with, the ordinary Service bullet at present in use.

Its value as a "stopping" bullet, while depending to some extent upon the range, would appear to be chiefly contingent upon contact with some object of sufficient density to induce a rupture of its apex and the consequent "setting up" of the softer composition of the core. That this effect is not invariable, even where such solid bodies as the bones of the horse are opposed to its flight, would seem to show that its capacity in stopping power is only limited.

# Clinical Articles.

## FRACTURES OF THE CERVICAL SPINE IN ANIMALS.

BY G. H. LIVESEY, M.R.C.V.S., HOVE.

I was very much interested in reading Dr. Corner's article in the January number of the Journal on "Fractures of the Cervical Spine in Animals," as a few such cases in dogs have come under my notice at various times, and I can fully endorse his view that such fractures need not necessarily prove fatal. The great difficulty to most of us seems to be that of making a correct diagnosis sufficiently early in the case for treatment to be effective. This was impressed upon my mind by a case which recently came under my notice.

A fox-terrier belonging to one of my clients was taken on a day's visit to another town with her mistress. This dog was very fond of fetching and carrying an india-rubber ball, and became very excited at the game. During the afternoon her mistress had been throwing the ball for the dog, and all went well until once, when rushing down the linoleum-covered stairs, the dog tripped and slipped down the whole length of the flight, landing on the point of her nose and turning a complete somersault on to her back. She gave a sharp cry of pain, and for some few moments was apparently so shaken as to be unable or unwilling to do anything but lie still. Later in the afternoon she brightened up, and the game of ball was resumed in the garden. This was soon brought to a sudden termination by the dog being evidently unwell and unable to move her hind-legs properly. She was brought indoors and nursed, but began to shake all over, and had what was supposed to be a fit. The hinder part of her body was partially paralysed and she would not move of her own will, whilst she seemed to be gradually becoming unconscious. Veterinary aid was at once sought, and an assistant to one of the local practitioners came. He is reported to have said that he could find nothing serious amiss, and seemed to think the dog had had an epileptiform fit. He sent medicine to be given at once. Although only half the prescribed dose was administered the dog died almost immediately. The body was brought to me for *post-mortem* examination, but only very little of the above history was then given to me. I was told of the accident on the stairs and the subsequent game, which led me at once to examine the neck and head. Here I at once, without any difficulty, was able to obtain a distinct crepitus on rotating the head or tilting it upwards. I boiled down the bones carefully and found the atlas cracked throughout its entire length inferiorly, and the two anterior articulating surfaces slightly chipped. The occiptal bone was uninjured, as were also the bones at the base of the skull.

I think the probable immediate cause of death here was the administration of some medicine which was brought to me some days later by the dog's owner (a chemist). It undoubtedly contained chloral hydrate, and I should think that this was one of the very last drugs among the *Materia Medica* to be selected as suitable to the case. I feel confident that, had this dog been kept quite quiet, with the head and neck fixed, and had stimulants been administered, there was every chance that the patient would have made an excellent recovery.

I do not think it was even absolutely necessary to fix the head and neck, for the dog would scarcely move of its own will, and, provided it had been kept quite still and quiet, displacement of the broken bones would have been very improbable.

I have seen four cases of fracture of the atlas, one of fracture of the axis, and one of the third cervical, but the above case is the only one of which I have any notes. The great danger in all these cases is displacement of the fractured bone and consequent interference with some of the great nerve trunks. The usual symptoms noticed are a condition of profound collapse, and great depression of the heart and respiration. The best treatment that I can recommend is absolute quiet in a darkened room, warmth (hot-water bottle) to the extremities, and repeated small doses of strychnine and bromide of potassium, or, if these cannot be readily obtained, three drops of brandy in warm milk every half hour. When the urgent symptoms have subsided it will be time enough to set about fixing the neck in a splint. This requires great skill and patience to adapt, although if the dog is a small one the neck and part of the head may be enveloped in plaster of Paris or several plaster bandages applied.

Let me once more warn those who have yet to meet their first case of fracture of one or more of the cervical bones to avoid chloral above all other drugs. The history of a fall or collision should alone be enough to put one on one's guard against such an error.

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## OPEN TEMPORO-MAXILLARY JOINT.

BY CAPT. A. H. LANE, ARMY VETERINARY DEPARTMENT, BLOEMFONTEIN, SOUTH AFRICA.

THE patient, a mule, belonging to the South African Garrison Institute, was admitted on November 15 with a wound in the region of the right temporo-maxillary articulation. There was considerable discharge of pus, but no synovia was noticed. The injury had been caused about a week previous—to all appearance by a severe blow. There was a good deal of swelling of surrounding tissues, and no treatment had been carried out. The animal was secured and the wound carefully syringed out with carbolic acid solution, 1 in 50. It was not thought advisable to thoroughly explore the injury, but it was evidently more than two inches deep.

November 17. The animal had been rubbing his head against the manger, and there was a discharge of a good deal of synovia from the wound ; the joint of the jaw was evidently open.

The region around the wound was severely blistered with biniodide of mercury, 1 in 7, and the animal was given as much water as it would drink. A small quantity of oil of cloves was then injected into the wound and the patient put on pillar reins; powdered perchloride of mercury was blown on the outside of the wound three times daily.

Every precaution was now taken to keep the patient secured so that he could not rub himself, but as he champed his jaws a strap was put tightly round the muzzle and lower jaw.

No food and no more water were given that day, and instructions were given that for the following days gruel only was to be given four times daily.

For the next three days there was an increasing discharge of synovia. The patient tried to rub the wound on the pillar rein, so a neck strap was put on instead of a halter, and was secured to the roof of the shed, the pillar reins being done away with.

Like most cases in mules, the more important and difficult part of the treatment was in securing and managing the animal rather than in the local treatment. The wound was not interfered with except to dust with perchloride of mercury.

On November 21, as the case seemed rather hopeless and the discharge of synovia continued, I called in Lieut. Kerby, A.V.D., and we decided that on next morning we should begin again syringing out the wound, as there was a good deal of pus with the synovial discharge.

The next day, however, there was less discharge, so the syringing was not carried out.

The following day (November 23) there was more improvement, so nothing further was done as regards local treatment.

After this the wound continued to heal and was left untouched.

During this time the nourishment was limited to gruel, but on December 10 a little bran mash was given, after which the diet was very gradually increased and the mule allowed to be loose in the box, without a head-collar.

The exercise was gradually increased by first putting the animal in a large kraal, without a head-collar, and later giving walking exercise twice daily.

On January 4 the mule was discharged cured and is now at work.

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## TWO CASES OF FRACTURED VERTEBRÆ.

BY MAJOR T. MARRIOTT, F.R.C.V.S. PRETORIA, SOUTH AFRICA.

CASE 1.—*History.*—A troop horse belonging to the Queen's Bays, a North American, 13 years old, was found on the morning of November 28, 1905, to have injured his back during the night. In the absence of any evidence whatever it is probable that the horse got cast or rolled under the bale and injured his back trying to rise. There was a large painful swelling across the loins, and the patient could move forward fairly well, but when turned the hind fetlocks knuckled over, and there was well-marked motor paralysis of the hind-quarters. The patient walked fully three-quarters of a mile to the Station Veterinary Hospital, and it was decided not to place him in slings. After standing for twenty-four hours he got down and was unable to rise without assistance. He was then placed in slings, and at first stood fairly well in them, but the following day he had to be released as there was complete motor and sensory paralysis of the hind-quarters.

The case being hopeless the horse was destroyed, and the *post-mortem* examination revealed the presence of a comminuted fracture of the fourth lumbar vertebra, involving the body arches, transverse processes and superior spine. Around the articular facets were large ossific deposits, but no trace of osteoporosis, a very common disease here.

CASE 2.—An Irish mare, 11 years old, an officer's charger, belonging to the Queen's Bays, slipped her head-collar and got away. When

trying to catch her against a barbed wire fence she attempted to jump it, but tripping up she fell over the fence and died on the spot. *Post-mortem* examination revealed the presence of a comminuted fracture of the fifth cervical vertebra. The vertebra was fractured into seven

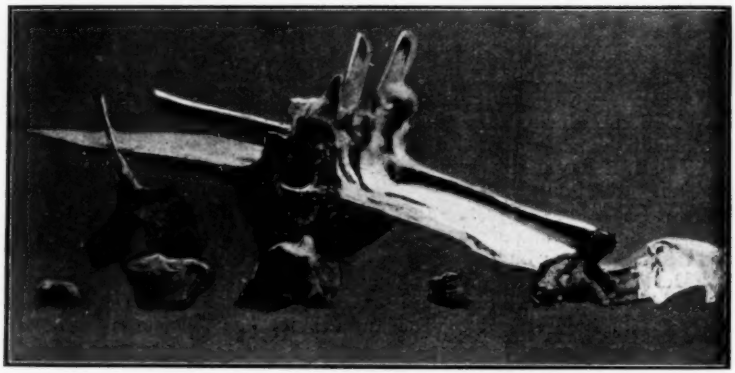

FIG. 1.—Comminuted fracture of the fourth lumbar vertebra.

pieces, the bone being, roughly speaking, completely divided in the centre, transversely to its long axis.

I record these two cases, not that fractured vertebræ are rarities, but simply to show in Case No. 1 the amount of smashing that can

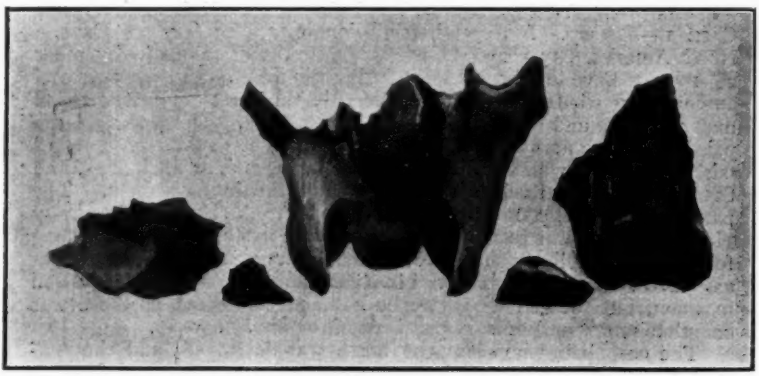

FIG. 2.—Comminuted fracture of the fifth cervical vertebra.

take place in stables and the power of movement afterwards; and in Case No. 2 the exception to the rule of so-called broken neck, which is generally dislocation only.

I am indebted to Farrier Quartermaster-Sergeant Preston, Queen's Bays, for the photographs herewith illustrating the above cases.

## MENINGITIS IN THE HORSE, SUPERVENING ON AN INJURY.

BY LIEUT. A. LEANING, A.V.D., MOOI RIVER REMOUNT DEPT., NATAL, SOUTH AFRICA.

THE animal in question had always been of an excitable disposition, and was noticed to have a trick of suddenly running backwards when being ridden, and then could only with difficulty be induced to go forwards again. He greatly resented having his legs handled, and on the day that the accident occurred (December 8, 1905), on attempting to pick up his feet, he suddenly reared up and, falling backwards, severely injured his head. He lay stunned for some time and then got up in a dazed, staggering condition, and was taken to the sick lines, but in a very short time became very violent and excited. He continued in this condition from December 8, 1905, to December 14, 1905, when he became paralysed in all four limbs, but struggled about trying to rise, and severely injured his head in the attempt. He died at 7 a.m. on December 17, 1905.

*Post-mortem* examination showed extreme bruising of the head, particularly about the base of the skull, but there was no fracture. The meninges of the brain and spinal were highly congested, and the brain substance softened, which probably accounted for the peculiar excitable temperament. The softening areas of the brain seemed general, but most noticeable in both central hemispheres and lateral lobes of the cerebellum. The medulla oblongata was also affected, so probably the origin of the 10th, 11th and 12th nerves were implicated. The base of the brain was somewhat disorganised in removing it from cranium, so I am unable to state what parts of the brain underwent softening in that position.

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## A CASE OF PSAMMOMA.

BY ARTHUR ROUTLEDGE, F.R.C.V.S., HACKNEY, N.E.

THE patient, a Canadian mare (6 years), was purchased in September, 1900, and it was noticed from the commencement of her career that she was always shy and nervous about having anything done to her head. On January 24 I was asked to see her, the symptoms presented being as follows: She was standing, when left alone in the box, with the head depressed and the ears slightly dropped. The eyelids showed ptosis, and her general expression was dull and pathetic, but when approached she would immediately become much excited and move backwards.

There were well-marked spasms of the muscles of the neck and back, and when her hind-quarters touched the wall she would rush frantically forward and collide with the opposite side of the box, apparently not seeing anything in front of her. After a time she would become more settled down, and by continual coaxing could be handled. A diagnosis of tumour of the brain was made and an unfavourable prognosis given.

*Treatment.*—A dose of physic was administered and a blister applied over the poll. As it was impossible to give a draught, two drachms of bromide of potassium were given in ball three times a day. Four

days later the excitement apparently subsided, and the mare had improved sufficiently to be exercised.

Ten days after the first attack I was again called to see her, as the symptoms exhibited on the previous occasion were again shown in a more aggravated form. The same treatment was adopted as before, but the patient became gradually worse and in such an excitable condition that it was impossible to do anything for her. On January 24 she was painlessly put to death by being shot through the heart.

*Post-mortem* examination of the brain revealed the presence of about two ounces of sero-sanguineous fluid in the left ventricle, in which there was an elongated pear-shaped tumour weighing two ounces and measuring $2\frac{3}{4}$ by $1\frac{3}{4}$ by $1\frac{1}{2}$ inches. In appearance it was of a yellowish-brown colour with a smooth surface, and in consistency it was somewhat jelly-like.

I sent the tumour to Professor MacFadyean, who reported it to be a psammoma.

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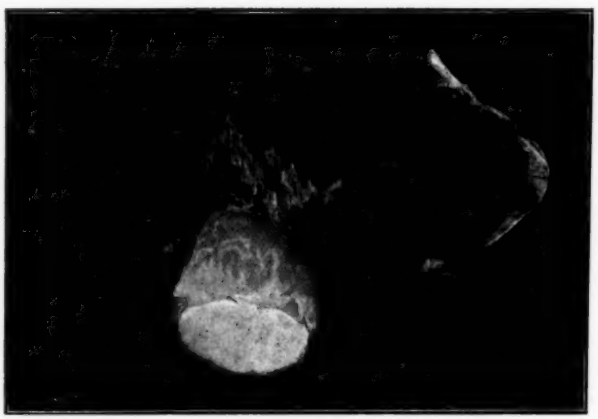
## UNIQUE TUMOUR OF A CRYPTORCHID'S TESTICLE; PROLAPSE OF BOWEL; RECOVERY.

BY F. L. GOOCH, F.R.C.V.S., STAMFORD, AND FRED. HOBDAY, F.R.C.V.S., KENSINGTON.

THE patient, a valuable Welsh shooting pony, 4 years old, had been purchased out of a drove, and was supposed to have been castrated. No evidence of testicles could be felt, and it was not until the animal had been in the owner's possession for some months that



The lipoma is shown as a white mass in the lower portion of the photograph.

his "rig" propensities developed themselves. Perfectly quiet and tractable at his work, he was troublesome when turned out and when in the proximity of other horses.

On October 10, 1905, the patient was cast and chloroformed. No scar could be perceived, and a search up each inguinal canal revealed

them to be empty. The testicles in each case were readily discovered in the abdomen, and removed without difficulty, strict attention being paid to asepsis. Sutures were applied in the usual way, but when the pony got up a swelling was distinct on each side of the scrotum. Thinking this to be bowel, the animal was cast and chloroformed a second time, the prolapsed gut was returned, and the inguinal canal sutured very deeply, the sutures being placed close together. The patient was then allowed to rise, and was placed in a narrow stall, with the hind-quarters raised, and kept standing up, being sparingly fed, for three weeks. For a week the wound remained clean and apparently free from suppuration; then it suppurated a little, but without giving rise to any inconvenient symptoms, and eventually the patient made an excellent recovery. The sutures were not removed, but were allowed to slough out, and in about three weeks the patient was taken to exercise.

The specimen was examined by Dr. Shattock, Pathologist to the Westminster Hospital and Curator of the Royal College of Surgeons' Museum, and was found to be a lipoma. One-half of the specimen has now been placed in this Museum, and its rarity may be imagined when, on the authority of Dr. Shattock, we are assured that a *lipoma* of the testicle has never before been recorded (to his knowledge) either in men or animals.

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## SOME INTERESTING FOREIGN BODIES.

BY R. J. FOREMAN, M.R.C.V.S., TOTTENHAM, N.

THE illustration shows a few foreign bodies which I have recently had to deal with and which are of a certain interest.

The rubber ring (illustrated actual size) was removed from a full-grown collie's neck. The owner, a working lad, called one day and enquired my consulting hours and probable fee for seeing his dog's throat, said to have been injured underneath with his collar about three weeks ago, and the wound would not heal up. About a week later he brought the dog. He had tied some rag around the neck a few days previously, but had been unable to get near enough to the head and neck to take them off again.

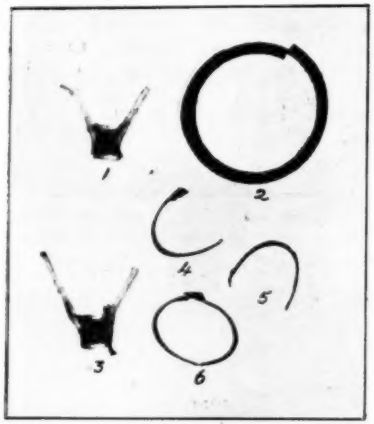
I had considerable difficulty in getting hold of the animal and securing his mouth, but when that was done the rest was simple. I clipped the hair from the swollen edge of the wound and found I had to go on clipping right round the neck, although there was no sign of an *open* wound on the sides or upper part of neck. The ring had become completely buried; the swollen circle was about half an inch thick, except under the throat, where the ring had penetrated for fully an inch. I probed it with forceps and found the ring here depicted (actual size), and snipped it through before removal. The wound did very well afterwards with ordinary treatment. The owner thinks that some children who were playing with the dog about four months before must have put it on in play and forgotten, or lost, it in the long hair.

A remark made by my groom (who held the animal) gives one a good idea of the case: "No wonder he was nasty, he thought his head would come off if any one pulled on it."

A similar case occurring in a Yorkshire terrier was reported some years ago by Messrs. Alfred Broad and Fred. Hobday in the *Journal of Comparative Pathology and Therapeutics*, vol. xv., p. 268, the ring in this case almost strangulating the animal by the pressure it was commencing to cause on the larynx and trachea.

The two fish-bones in the illustration were removed from a month-old kitten's pharynx, and only struck me as worthy of note from the absence of any urgent symptoms. There was slight stertor in breathing and inability to eat or drink. The animal was quite lively and playful; a capricious appetite was the cause of owner's visit to me.

The last items in the illustration are two rings of the trachea of a




1 and 3, fish bones. 2, rubber ring (actual size). 4 and 5, segments of the trachea of a fowl. 6, one complete tracheal ring.

fowl; they were originally joined together, but in drying have become separated. These were removed from around the base of a cat's tongue. The animal was brought to me in a very emaciated condition, with a history that it had just weaned some kittens. It seemed very hungry indeed, but unable to eat or drink properly for about ten days, and not at all for the last two. A little saliva was running from mouth. I examined the teeth and throat, but found them all right. Noticing that the tongue was much swollen and rather purple, I gave that some attention, and eventually discovered the rings embedded around its base, something after the style of the rubber ring on the collie's neck. In the moist state they were much the same colour as the tongue, and would have been difficult to see even if merely lying on the surface of that organ. I cut them through with scissors, and on removal found the animal at once much better and able to eat soft food, but not to lap milk. The patient had quite recovered within a week.

## TWO INTERESTING NEEDLE CASES.

BY F. L. GOOCH, F.R.C.V.S., STAMFORD.

CASE 1.—The patient, a Persian cat, was brought into the infirmary about ten o'clock one evening with the history that he was supposed to have a pheasant bone in the throat. The symptoms were the usual ones associated with choking.

Upon carefully manipulating the throat I could detect nothing amiss with this region, but upon passing my thumb and fingers towards the sternum I felt something sharp, and upon closer examination discovered this to be the point of a needle.

It was sticking through the œsophagus in its lower third, just above its entrance into the thorax. Without any difficulty I removed a large needle threaded with silk, and beyond a little attention to dieting, no other treatment was necessary, and the patient made an excellent recovery.

CASE 2.—A cat was hurriedly brought one day with a message that the owner thought the animal had swallowed a needle.

It had not eaten anything for three days, and was distinctly ill. After manipulating the abdomen I noticed something hanging from the anus, and upon examining this I found it to be a piece of thread doubled up. I applied slight traction to this, but as I could not withdraw it, I inserted a small speculum, with the aid of which and a pair of forceps I was able to remove the head of a needle and thread in its entirety. It is particularly worthy of note that this had passed all along the alimentary canal without becoming fixed in the mucous membrane, until it had arrived in the rectum.

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## FOR HIGHER EDUCATION IN CANADA.*

THE following important correspondence and documents are explanatory of the movement which is now taking definite form in the Dominion of Canada to raise the standard of veterinary education to a higher plane and to place it firmly under Government control and protection :—

Dr. ROSCOE R. BELL, D.V.S., New York City.

SIR.—I have been instructed by Dr. Rutherford to forward to you a copy of the resolution passed by the Ontario Veterinary Organisation Association Committee, and presented to the Hon. Nelson Monteith, Minister of Agriculture, Toronto; also, a copy of a letter which was sent to every veterinarian in the Province of Ontario.

The Veterinary Director-General deems it advisable to keep you in touch with this highly important movement, in the endeavour of improving the status of veterinary education in Canada.

Yours faithfully,
GEORGE HILTON,
*For Veterinary Director-General.*

*Ottawa, December* 21, 1905.

* From the American *Veterinary Review.*

The Hon. Nelson Monteith, Minister of Agriculture, Toronto, Ont.

Sir,—We desire respectfully to bring to your notice the following resolutions which were unanimously passed at a meeting, held this day, of the Special Organisation Committee of the Ontario Veterinary Association.

*Resolved :—*

(1) That this Committee is of opinion that in view of the large live stock interests of Ontario, not to speak of the rest of the Dominion, and of the importance to stock-owners of the maintenance for the veterinary profession of a standard of education equally high in proportion as that demanded for the other branches of learning in this Province, the time has now arrived for the Provincial Government to take control of veterinary education and to assume at least part of the expenditure required to put it on a satisfactory basis.

(2) That this Committee would therefore respectfully recommend to the Provincial Government the advisability of establishing in connection with the University of Toronto a Faculty of Comparative Medicine to be endowed from the funds of the Province to such extent as may be necessary, in conjunction with the fees chargeable to students, to carry on the work in a manner creditable to the Province and on a standard equal to that obtaining elsewhere in British Possessions.

(3) That the work of establishing and maintaining the Ontario Veterinary College, an institution which has been of the greatest benefit to the live stock interests, not only of Ontario, but of the whole North American Continent, having been hitherto carried on by the sole efforts and at the expense of one individual, Professor Andrew Smith, this Committee is of opinion that in the making of any new arrangements that gentleman's interests should be carefully conserved, and would suggest that he should be appointed Dean of the above proposed Faculty of Comparative Medicine, and further, that the premises owned and occupied by him as the Ontario Veterinary College should be utilised by the University in the teaching of Comparative Medicine.

(4) That in the event of the suggestions contained in the foregoing clauses meeting with the approval of the Members of the Provincial Government this Committee would be willing, as representing the Veterinary Surgeons of Ontario, to render any required assistance in arranging details and especially in outlining the work of the proposed new Faculty as regards matriculation, curriculum and final examination.

(5) That in order to put the recommendations outlined above into effect it will be necessary to place the whole matter of veterinary education in Ontario under legislative control and to that end this Committee would respectfully suggest the introduction by the Government of a measure providing for the maintenance of a standard of veterinary education in accordance therewith. In the preparation of this measure also this Committee would be willing to assist.

(*Signed*) Chas. Elliott, Chairman. W. Lawson.
J. F. Quinn. J. H. Tennent.
J. G. Rutherford.

C. Heath Sweetapple,
*Secretary Ontario Organisation Committee.*

*Toronto, November* 8, 1905.

DEAR SIR,—I beg to enclose herewith copy of a memorandum presented to the Hon. Nelson Monteith, Minister of Agriculture, Toronto, on the 8th day of November last, by the Organisation Committee of the Ontario Veterinary Association.

The memorandum speaks for itself, and shows very plainly the line of action which it is desired the Provincial Government shall follow.

Professor A. Smith accompanied the delegation, and spoke strongly in favour of the proposed change.

The Minister expressed himself as being in full sympathy with the spirit of the memorandum, especially with the view of the fact the delegates did not press upon too high a standard of matriculation.

It was generally conceded that the examination for high school entrance would be sufficient.

I would impress upon you the importance of bringing your personal influence in favour of the proposed line of action to bear upon your representative in the Legislature, whether he is a supporter of the Government or not. If your member belongs to the Opposition, it might be well to interview the defeated Government candidate, with a view of getting his support for the measure.

I am at present far from well, and do not know whether I will be able to attend the annual meeting of the Association or not. So I am adopting this method of informing you as to the present condition of affairs, and hope you will do all you can to improve the status of your chosen profession.

Yours faithfully,
(*Signed*) J. G. RUTHERFORD.

*Ottawa, December* 13, 1905.

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## VETERINARY EDUCATION IN AUSTRALIA.

THE career of a veterinary surgeon is one likely to particularly commend itself to young Australians. It will interest many to hear that it is proposed that the precedent established by the affiliation of the Edinburgh Veterinary College with the University of Liverpool should be followed in Australia. The Victorian Government has at present under consideration a scheme for taking over the Melbourne Veterinary College, and having it affiliated with the University of Melbourne, and so provide a University course in this profession.—*Life*, Melbourne, Australia.

## SUPERVISION OF THE MILK SUPPLY OF THE CITY OF GLASGOW.*

REPORT SUBMITTED BY MR. A. M. TROTTER, M.R.C.V.S., VETERINARY INSPECTOR.

In obedience to the remit made to me on 4th ult. on the above subject, I have to report as under:—

The power to supervise the milk supply of the city is contained in the Glasgow Police Amendment Act, 1890, and it was with the intention of exercising more fully the powers therein contained that I was appointed in 1897. The terms of my appointment read: "The primary duty of the Veterinary Surgeon is to assist the Corporation in applying Sections 24 to 27 inclusive of the Glasgow Police Amendmend Act, 1890, relative to the inspection of milch cows—(1) systematically within the city; (2) occasionally, wherever they are kept, if for the supply of milk within the city—with the view of determining whether such cows suffer from tuberculosis or any other disease which may render their milk dangerous or injurious to health." Since then, the cows housed in the city byres have been examined systematically at short intervals, whilst those in country districts have occasionally been inspected.

There are, however, grave difficulties in the way in giving effect to the powers conferred by the Act as to inspection of country herds. One of these impediments is the want of some means by which we can ascertain the farmers who consign milk to the city. The magnitude of the task may be estimated from the list which the Sanitary Inspector kindly caused to be compiled from enquiries which he instituted, at my request, as to the number of persons consigning milk in 1899. At that time it was ascertained that 765 persons were consigning milk to Glasgow from outwith the city boundaries. Those persons were located in the different counties, as follows: Ayr, 278; Lanark, 228; Renfrew, 111; Stirling, 59; Dumbarton, 37; Kirdcudbright, 26; Wigton, 10; Dumfries, 7; Peebles, 3; Perth, 2; Cumberland, 2; Linlithgow, 1; and Clackmannan, 1. Whilst this list was probably accurate at the time, it must be remembered that the number of persons consigning milk to Glasgow is constantly varying, and the list for any year cannot be regarded as accurate for the succeeding years.

A second impedient to the thorough supervision of the milk supply is the lack of a clause in the Act which would place on the dairyman consigning to or selling in the city the onus of notifying the Veterinary Surgeon to the Corporation of *all* cases of disease. In the more recent Acts, private or general, dealing with milk supervision, the powers conferred are restricted to cases of tuberculosis. This, in my opinion, is a grave defect, as there are other diseases affecting bovines which are equally injurious to the public health, and I would therefore suggest that dairymen ought to be compelled to notify also cases of disease of the udder in any form, eruptions on the teats, chronic wasting disease, *i.e.*, piners, and those undergoing medical treatment. The necessity for this additional provision has been apparent for many years, and my experience in the city abattoirs has intensified the impression.

* A report issued by Mr. A. M. Trotter, M.R.C.V.S., Veterinary Inspector, and Mr. J. Lindsay, Town Clerk Depute, for the consideration of the Sub-Committee on Meat and Fish Inspection, of the Glasgow Town Council, on January 22, 1906.

The large number of dairy cows consigned from our dairying counties, chiefly those above enumerated, shows that large numbers of cows are not in a condition to yield milk fit for human consumption; and were our local Act amended as above suggested, it would render innocuous many sources of danger to the public health.

In the third place, it would, in my opinion, be an improvement upon our present Act were power to be obtained to slaughter certain cows, particularly those affected with tuberculosis of the udder, and provision made for paying the dairyman the full market value of the animal, plus expenses, as compensation in the event of mistaken diagnosis. As our Act stands at present, we have only power to remove any objectionable cow out of the herd, and during the past eight years I have been informed of several instances in which the milch cows I had objected to were simply sold to another dairyman. To give a case in point, I found on one occasion, on a farm in a country district, a cow with a tubercular udder, and I had the owner served with a notice by Mr. Lindsay, under the terms of the Act, to remove the cow from the herd. I endeavoured to induce the owner to send it to a public slaughter-house to have it slaughtered, guaranteeing him, on behalf of the Corporation, full compensation in the event of the *post-mortem* showing the animal to be free from tuberculosis, but he would not consent, preferring to dispose of it in the usual way. The cow was removed from the herd, but where to I could not ascertain, notwithstanding my efforts to trace it. Such an animal was useless for any purpose, and the sooner it was slaughtered the better for all concerned.

The fourth alteration I have suggested deals with the sanitary conditions under which milk is produced. Whilst, no doubt, the sanitary arrangements have been considerably improved during recent years, there still remains much to be desired, not only in construction and repair of premises, but also in the method of handling the milk. There can be no doubt that milk contaminated with filth is not a suitable food for man, and every precaution ought to be taken to prevent the entrance of extraneous substances. Perhaps the chief of these impurities is fæcal matter, showing gross carelessness and inattention to cleanliness. This state of matters, however, is remediable, and simply demands the enforcement of closer attention to detail to bring about a radical reform; and were the Corporation possessed of the power to prohibit the consignment of such milk, it would certainly reduce the amount of such contamination very considerably.

A. M. Trotter,
*Veterinary Surgeon.*

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*Report submitted by Mr. J. Lindsay, Town Clerk Depute.*

Under reference to your minute of August 4 last, when the Veterinary Surgeon having pointed out the necessity of the Corporation inaugurating a more thorough supervision of the milk supply of the city, by the obtaining of Parliamentary powers in relation to (1) annual registration of persons consigning milk to the city; (2) notification of disease; (3) the slaughter of diseased cows, especially those with tuberculosis of the udder; and (4) the consignment or sale of milk produced under unsanitary conditions, you continued consideration of the matter, and remitted (*a*) to that official to submit a note of

instances showing the necessity for additional powers, and (*b*) to me to report on the extent to which the existing statutory provisions would require to be amended or amplified, I beg to report as follows, viz. :—

(1) The Annual Registration of Persons Consigning Milk to the City.

There is no existing statutory provision requiring such registration, and, because of this, the Veterinary Surgeon says that there is difficulty in ascertaining who the farmers are who consign milk to the city. That difficulty, however, is, to some extent, met by the provisions of Section 17 of the Glasgow Police (Amendment) Act, 1890, authorising the Corporation to require a cow-keeper, purveyor of milk, whether wholesale or retail, or the occupier of a dairy, to furnish a full and complete list of the names and addresses of farmers, cow-keepers, milk dealers, or other parties, from whom, during a period to be specified, the milk, or any part of the milk, which they sell or distribute, was obtained. Of course, that is a long way short of annual registration by the persons who consign milk to the city, and, if such registration be desired, the existing statutory provisions would require to be amplified. There is, it seems to me, no good reason why such persons should not be compelled, by the process of annual registration, to co-operate with the Corporation in the protection of the public health of a vast aggregate of people, such as is within the city, to whom they, through the city dairymen, daily forward large supplies of milk for human use. The dairyman who carries on a retail business within the city is bound to register his shop. If he does not, he becomes liable to a penalty, and if and when he does, he comes under the control of the Sanitary Authority as regards its construction and condition. There is probably greater reason for requiring the country cow-keeper or farmer to register, because the Sanitary Authority would thereby get into more definite and close touch wtth the source of the city's milk supply, which is a factor of considerable importance at times.

(2) Notification of Disease.

Here, again, there is no existing statutory provision requiring the dairyman or cow-keeper to notify the existence of disease in his stock; but the preservation of the public health, however, demands, as a reasonable precaution, that where a man sends his milk into the shops of the city for sale, he should be under obligation to forthwith advise the Sanitary Authority of the city of any disease prejudicial to such health that may break out in his stock. It is provided in Section 18 of the Act already referred to, that whenever it shall be certified by the Medical Officer that milk is being brought within the city from any farm, dairy, or place beyond the city, in which any person is suffering from infectious disease, or that, in his opinion, infectious disease is being spread, or is likely to be spread, by the sale or delivery of milk from any farm, dairy, or other place within or beyond the city, and that the said milk is being sold or offered for sale in any shop or premises within the city, or distributed therein from carts, or otherwise, at the

risk of communicating such disease to the inhabitants, the Procurator-Fiscal shall apply to a Magistrate or the Sheriff for an Order to prohibit the sale of milk so brought, from and after due intimation of such Order, until the person affected has been removed, or shall have recovered from such disease, the premises have been disinfected, and the bedding and clothing have been destroyed or thoroughly disinfected, and until it is certified by the Medical Officer that the said premises are free from infection and in a proper sanitary condition, and that the sale of milk from such place may be safely resumed; and every person contravening such Order is for the first offence liable in a penalty not exceeding £5, and for any subsequent offence in a penalty not exceeding £10. Thus, this leaves the detection of the existence of any disease with the said Authority, although the source of the milk supply may be hundreds of miles distant from the city. The initiative here should not be left with the said Authority. If the consigner of milk to the city desires there to find a market, it is not unreasonable to put on him, by statute law, if he will not accept it under moral law, the duty of advising the Sanitary Authority of the city which he supplies that one or more of his cows is suffering from one or other of the diseases referred to by the Veterinary Surgeon, so that the needful precautions may be taken to protect the health of the public.

(3) The Slaughter of Diseased Cows, especially those with Tuberculosis of the Udder.

There is no such power, although the public interest points clearly to the necessity for such. The only power in this aspect of the case is to be found in Section 26 of the Act of 1890, which provides that every dairyman or keeper of a byre or cowshed whose milk is sold within the city, who, after intimation has been made to him by the Corporation that any cow in his possession kept for the supply of milk for human consumption suffers from tuberculosis or any disease which may render the use of such milk for human consumption dangerous or injurious to health, shall retain such cow in his possession, shall be liable in a penalty not exceeding £5. This, again, leaves the detection of the case and the initiative in proceedings with the Local Authority of the city, who, in many instances, are far removed from the particular byre or cowshed. Moreover, the provision is wholly inadequate to meet the requirements of the case. The dairyman or byre-keeper is simply prohibited, after intimation, from retaining the diseased cow in his possession. He may sell or dispose of it as he chooses, and he is in no way bound to disclose to the Sanitary Authority what he has done with it, or how he has got rid of it. The Veterinary Surgeon in his report gives you an instance of such a case of removal, and of his inability to trace the animal. Such may be a very common case, as the limited and restricted provisions of the Act lend themselves, in the case of a person not over scrupulous, to defeat the very object the statute was intended to meet. If such an animal is, as the Veterinary Surgeon put it, "useless for any purpose," there is no reason why, in the public interest, it should not be at once slaughtered. If, on the other hand, a *post-mortem* examination shows that the animal had wrongously been suspected and slaughtered, then the case would be met by payment of some compensation to the owner, the wrongous destruction having taken place for the benefit and safety of the public.

(4) The Consignment or Sale of Milk Produced under Unsanitary Conditions.

So far as regards the byres and cowsheds within the city, due and sufficient powers of supervision are contained in the Dairy Orders and relative Bye-laws made by the Corporation, but the manifest defect here is in the fact that such supervision is confined to those premises which are within the city boundaries. Such supervision is, needless to say, absolutely indispensable. Without it there is no assurance of any worth that the public will not be exposed to the very serious risks of infectious disease. With it there is conversely the confidence that those risks are reduced to an absolute minimum. There is clearly no reason whatever why such supervision should not be extended to those farms and byres outwith the city, from which the city obtains by far the greater part of its daily supply of milk.

Accordingly, I agree with my colleague (the Veterinary Surgeon, in pointing out to the Corporation, as the Local Authority of the city responsible for the public health, the great and outstanding necessity of inaugurating a more thorough supervision of the milk supply of the city by the only means available to the Corporation—the obtaining of Parliamentary powers. The present state of the law on this subject is so inadequate and unsatisfactory, and the risk to the public health so manifest and serious, that I cannot conceive the idea of Parliament hesitating to give the powers required and desired.

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## ABSTRACTS FROM THE 1905 REPORT OF MR. J. A. GILRUTH, M.R.C.V.S.,

PRINCIPAL VETERINARY OFFICER AND BACTERIOLOGIST TO THE NEW ZEALAND GOVERNMENT.

## THE INSPECTION OF THE DAIRY HERDS OF WELLINGTON.

The Veterinarian detailed for special inspection there reports as follows:—

I have the honour to submit a synoptical report on the dairies (two districts) supplying milk to Wellington.

Health of Cows.—Diseases occurring amongst cows, which concern us from a public health point, are tuberculosis, actinomycosis, and mastitis. The procedure adopted by me in the inspection of the various herds consisted in (*a*) examination of each individual cow as to general condition, and (*b*) examination by manipulation of the throat-glands and the udder after milking.

The total number of cows in each of the two districts exhibiting abnormal conditions, and, as a matter of course, requiring to be subjected to further examination, and possibly to the tuberculin test, are given in the following table, whilst on the specially prepared report-sheet on each dairy establishment visited will be found a detailed record of all abnormalities discovered on such examination:—

| District | Number of Cow-keepers | Approximate Number of Cows Milked | Number of Cows Examined | Cows exhibiting Abnormal Conditions | Disposal of Milk Supply |
|---|---|---|---|---|---|
| Karori .. | 17 | 292 | 256 | 36 | Milk retailed. |
| Makara .. | 26 | 362 | 282 | 22 | Milk separated; cream retailed. Some retail milk during winter. |

The examination of udders disclosed that induration of quarters and blind teats are numerous, and occasion loss to the cow-owners. This loss might be minimised if the owners would obtain advice on all troubles affecting the udder.

Cleanliness in Milking.—I made it a point of being present at the various dairies inspected at one of the milkings (morning or evening), and noted that at a majority of the dairy establishments the cleansing of the udder or the washing of the hands before milking was often omitted, and the objectionable practice of wetting the hands in milk (dipping them into the milk-pail) was of frequent occurrence.

*Recommendations.*—So that the unsatisfactory and insanitary conditions observed be remedied the following demand official attention :—

(1) The registration of all cow-keepers, whether they retail milk or cream.

(2) The present existing antiquated and out-of-date milking sheds should be replaced by buildings erected and fitted in a substantial and sanitary manner.

(3) The more rigid enforcement of the sanitary provisions prescribed by the Dairy Industry Act, viz. :—

(*a*) The removal of all solid and liquid manure from the milking shed immediately after each milking; the floors to be cleansed and flushed.

(*b*) Providing suitable dairy utensils.

(*c*) Convenience for the proper cleansing of dairy utensils.

(*d*) Providing proper draining racks for utensils after scalding.

(*e*) The cleansing of udders and teats of each cow before milk is drawn.

(*f*) The cleansing of hands before milking.

Many of the regulations at present optional should be compulsory, especially regulations relating to the cooling of milk before being retailed, and also to the contamination of milk supply arising from apparent diseased udders. It should most certainly be made incumbent on all dairymen to notify all such diseases.

There should also be a system of reasonable and uniform inspection, and from this the man who keeps his cows under proper conditions has nothing to fear, whilst careless or purposely negligent cow-keepers would suffer, and justly so.

Finally, certain dairymen deserve credit for taking the initiative in providing suitable premises and maintaining them in good hygienic condition, as also do those who have made extensive alterations and improvements on our recommendations, so that the unclean and unwholesome conditions existing at the time of our first visit have mostly disappeared.

CONDITION OF COWS.—At this time of the year, after wintering and calving, cows generally appear in their worst condition; but, on the whole, I found about 40 per cent. in very good condition, about 50 per cent. in good milking condition, while 6 per cent. were rather poor, and 4 per cent. were so thin that they were bordering on the line of emaciation. In this district most of the milking cows at "registered dairies" are kept in during the winter nights, and winter food is provided for them. These cows that were in poor condition, or very poor condition, were apparently located on exposed places, or had not been properly provided for during the winter months.

HEALTH OF COWS.—On the whole, they appeared from a general inspection, without testing, to be a fairly healthy lot. A few cows were found to be ill after calving, and I also intend to revisit a few doubtful cases. None of the cows showed decided symptoms of being affected with tuberculosis or actinomycosis. A smaller percentage than usual had a blind teat.

I made the main object of my visit the health and general condition of the cows, as my time was limited, but I also had a look through a considerable percentage of the milking sheds, and I have the following remarks to make on them:—

MILKING SHEDS, &c.—In most cases these are old buildings which have been put up before the Act came into force; but attention was evidently given to the keeping of the byre sweet and clean, and lime-wash seemed to be freely used. A certain percentage were hardly up the requirements, but the stock inspector is attending to these. In some cases the owners had no idea how to mix the lime-wash, as it came off readily. In a few cases the manure heap was either too near the byre, or situated in an unsuitable place.

One great difficulty in a district like Southland, where it rains so frequently, is the road into the byre or cow-yard (if there is one). Accommodation is being made in most cases, so that all cows can be taken into the byre at the same time, and the stock inspector is making efforts to get the roads into the byres improved, while, at the same time, he is advising the farmers to do away with the cow-yards where possible.

## ABORTION AND STERILITY IN COWS.

During the past year a considerable amount of information has been collected regarding the contagious form of the disease, all of which has gone to support my previous reports. It is regrettable that no steps have been taken to deal with the disease from a legal point of view in order to prevent its dissemination by careless or unscrupulous individuals.

Several cases have come under notice in which it has been proved that the disease has been introduced to previously clean farms by means of wandering infected bulls; and against this there also appears to be no remedy.

The treatment recommended by this department has continued to prove generally successful. From the laboratory 25,000 doses of the drug recommended have been issued, which is not so large a number as in the previous year, due entirely to the fact that the same materials are now stocked and sold at a reasonable price by every chemist.

INCIDENCE.—Although at the first blush contagious abortion appearing in a dairy herd would appear to be far more serious a matter than what may be termed "the contagious form of sterility," which is so common in nearly all the dairying districts of the Colony, practical experience would generally convince any one to the contrary. Abortion, when observed, frequently occurs when pregnancy is so far advanced that a certain milk yield may be assured, and the mere loss of the calf is considered of comparatively small importance. The sterility, however, which so often follows, expressed by the cow persistently returning to the bull and failing to conceive, is a far more serious matter, meaning, as it does in a dairy herd, that the cow at best enters the phase of milk production and profit earning the following year, too late for much revenue to be obtained from her product, if, as so frequently happens, she does not remain completely barren.

It often occurs that an in-calf cow is bought, and that, soon after her introduction into a previously clean herd, she aborts. The fœtus is not searched for, and others abort through the influence of contagion. The fœtus may be buried, removed by dogs, or other circumstances exist which may prevent that form of contagion, and all may apparently be well. Soon, however—generally within a few days—the cow which has aborted shows evidence of œstrum or desire for the male. Then it is found she fails to conceive, and "returns periodically to the bull." Others, after being served later by the same bull, also fail to conceive, and become to all intents sterile for prolonged periods, although repeatedly served. Generally farmers in such circumstances conclude that the bull is impotent; the neighbour's bull is borrowed, with little or no benefit to the first farmer, the only tangible result being the conveyance of the trouble to the obliging neighbour; or the bull is sold, to the detriment of the buyer; or the offending cows are themselves driven to a sale-yard, to the certain discomfiture of the purchaser.

CAUSE.—The fact that the disease spreads in the same way as do all contagious diseases is, in itself, sufficient proof that the cause is a living organism or microbe. As a matter of fact, the microbe has actually been isolated by Professor Bang, of Copenhagen, from cases of abortion cultivated artificially, and the disease produced experimentally.

MEANS OF SPREAD.—These have already been indicated. Cows in calf are likely to abort if they are permitted—

(1) To come into contact with an animal that has recently aborted; or

(2) To come into contact with an aborted fœtus; or

(3) To eat food material contaminated with the discharge of a cow that has aborted.

Empty cows may fail to conceive through—

(1) Being served by a bull which has recently served an aborted cow; or

(2) Being served by a bull which has been contaminated during service or otherwise by the germs of the disease.

Any bull is liable to convey the germs of the disease *that has recently served a cow which has aborted or a cow that is affected with this form of sterility.*

SYMPTOMS.—When abortion proper is about to occur in a cow far gone

in calf no symptoms sufficient to attract attention are as a rule exhibited. Occasionally evidences of uneasiness and attempts to apparently prepare for calving may be observed, but generally the event occurs with no premonition to the owner.

The other manifestations of the disease are practically only that some cows persistently "return to the bull," in some cases regularly, but more often irregularly, it may be in three or more weeks after service, and in all such cases it is only wise to adopt the proper treatment for the eradication of the disease.

TREATMENT.—(1) Whenever a cow actually aborts *search immediately for the fœtus, and destroy it by burning it on the spot where it lies, if possible.* If this is not feasible, it should be buried deeply.

(2) *Thoroughly dig up the ground* on which the fœtus has lain. together with an area of, say, three yards on every side of it, and saturate the surface with a liberal quantity of non-poisonous sheep-dip or other safe disinfectant.

(3) *Isolate the cow* and keep her isolated for three weeks, using a temporary pail, if necessary, for milking purposes. Meanwhile apply treatment by irrigation as described hereafter.

(4) In the case of a cow failing to conceive, and returning to the bull at short intervals, treatment by irrigation should be applied as described later.

(5) Where several cows in a herd abort, or keep returning to the bull, it is found to be absolutely necessary in order to prevent the spread of the trouble, and to ensure its complete eradication, that not only these cows but *every cow in the herd should be treated.*

(6) In all cases the bull should be treated.

MATERIALS REQUIRED.—From our experience the antiseptic drug which best combines efficiency with simplicity of application is mercuric chloride (corrosive sublimate). This drug is for such purposes as this put up in flat circular pellets, each containing a definite quantity (8·75 gr.). We have found the "*Soloids*" prepared by Messrs. Burroughs Wellcome and Co. to be undoubtedly reliable, having now despatched from this laboratory nearly a hundred thousand of these, and, up to the present, the few complaints we have received have been indubitably traced to improper or careless administration on the part of the operator.

In addition to the pellets of mercuric chloride, it is also necessary to be provided with a 3 feet length of thick india-rubber tubing of $\frac{1}{2}$ inch diameter, and a small funnel, either of glass or enamelled metal.

Also, for use in the treatment of the bull, an ordinary enema syringe, with vulcanite fittings, should be obtained.

The strength of the solution of mercuric chloride is to be used as follows:—

(*a*) For cows which are repeatedly returning to the bull, or are apparently sterile, 1 in 1,250. This can be conveniently prepared by dissolving one pellet in an ordinary (clear glass) whisky-bottleful of water which has been boiled and allowed to cool to about blood heat.

(*b*) For a bull, a solution of the same strength (1 in 1,250) should be used.

(*c*) For cows which have just aborted, a weaker solution (1 in 2,500) should be used and applied once daily for three successive

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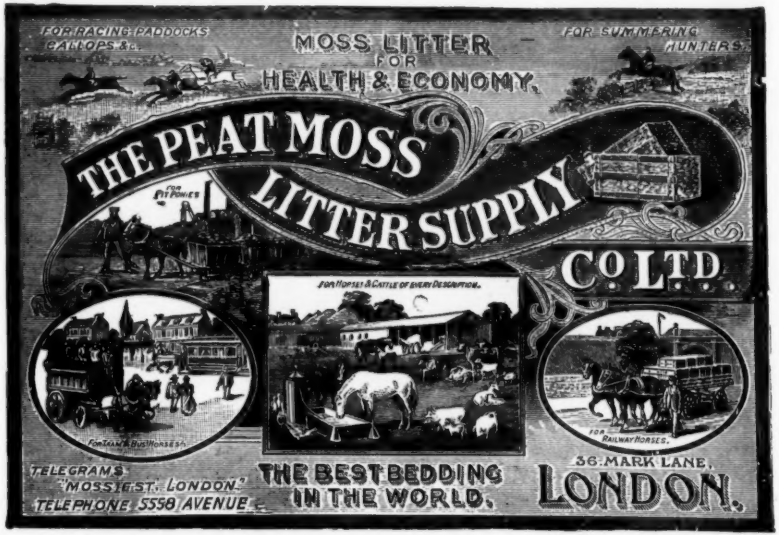
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The "COUNTY GENTLEMAN," *April* 1, says: "Chief among the merits of Peat Moss are the ease with which it is stored; the small danger it offers as regards fire compared with Straw; non-conductivity; the great powers of absorption; its antiseptic properties, and the ease and advantage with which it can be used as Manure in town gardens and in the country."

days, and at weekly intervals afterwards if there be any discharge from the vagina. This solution can be made by dissolving one pellet in two whisky-bottlefuls of water.

(*d*) For in-calf cows more than three months pregnant which are to be treated as a preventive measure, the solution 1 in 2,500, as in paragraph (*c*), should be used.

Unless in the case of an actually aborted cow, one application only is necessary, if properly carried out.

### The Method of Procedure in Treating Cows.

(1) Boil for five minutes the tube, with the funnel inserted into one end, and then apply to the outside of the tube a dressing of salad-oil or good lard.

(2) Wash the hands and arms thoroughly in hot water to which a disinfectant has been added.

(3) Place the free end of the piping, by means of the hand, gently into the womb (or in the case of an in-calf or sterile cow, as far up the vagina as possible without undue force being used), taking care not to injure the lining membrane. During insertion the curve of the tubing is better turned downwards.

(4) Hold the outer end of the tubing with the funnel about six inches above the root of the cow's tail.

(5) Pour the solution of mercuric chloride, as described, gently into the funnel, and so thoroughly irrigate the parts. If the fluid does not run fairly freely from the tube, the inner end need only be moved gently to and fro to secure a free flow. The intention is to thoroughly irrigate every portion with the solution.

(6) Thoroughly wash down the parts from the root of the tail to the bottom of the udder with some of the same solution as that used for irrigating.

### The Method of Procedure in Treating a Bull.

Place the animal in a crush-pen, or otherwise secure him in such manner that he may be readily handled without danger. Then grasp the prepuce (or sheath) by the left hand, and pass the nozzle of the syringe inside the sheath, afterwards holding it in position with the same hand. Then, with the right hand, pump into the sheath a quantity of the solution sufficient to thoroughly irrigate the parts.

## BENEFITS OF VACCINATION AGAINST BLACK QUARTER.

As to the benefits of compulsory vaccination, Mr. Young reports:—

After six months' trial compulsory vaccination has proved to be a move in the right direction, the mortality having been reduced by 75 per cent. within that period as against that of previous years before vaccination was resorted to. It was common then to hear of losses of forty, thirty-five, thirty, twenty, and less numbers occurring on different farms. In fact, in one special case I heard of near Waitara, as many as 150 calves died of blackleg in 1898. No

calves were put on that land until last year, when these were all vaccinated.

The total number of deaths reported this season being only 115, and, making an allowance of, say, twenty-five for unreported cases (although it is against the Act not to report all cases of blackleg), this would give us roughly two in every thousand of all the young cattle in the district that have died of the disease. This is, I consider, a very successful start in the stamping out of the disease.

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## DR. VON BEHRING'S BOVOVACCINE AS AN IMMUNISING VIRUS.*

BY CLAUDE D. MORRIS, V.S., BINGHAMPTON, N.Y.

(Presented to the Fifteenth Annual Meeting of the New York State Veterinary Medical Society, September 12-15, 1905.)

In bringing to your attention the question of an immunising virus as a medicant in treating bovine tuberculosis, I am asking of you to take note that in the realm of medical science another step has been taken which not alone adds to the glory of scientific achievements, but by a larger measure adds to the health and wealth of mankind. I assume it is generally known that during the last decade an effort has been undertaken to find a protective agent, an immunising virus, in the wide-world effort to exterminate tuberculosis. This great and lofty aspiration has reached the first step, to say the least, in its development toward ultimate fruition.

If man can be immuned against small-pox by inoculation with living cow-pox bacilli, if cattle can be immuned from anthrax with similar methods, even if antitoxins, the product of pathogenic bacteria do mitigate the ravage of a communicable disease, and also if a toxin is serviceable as diagnosing infectious and communicable disease in cattle, surely we must feel that this theory has a strong foundation to rest upon. It is the function of the medical art to not only cure disease, but to take such means as will alike prevent its propagation. Tuberculin can serve but one purpose. It will unquestionably tell us of the existence of tuberculosis, but it in no way points to its extermination. The idea that all cattle reacting from tuberculin should be slaughtered is not sound in theory or practice, and up to the present time this idea is largely in vogue. I believe we are now about to enter upon a larger conception of a large question. The step of positive diagnosis has been taken. To lessen the disease or extinguish it is the next step. The latest investigation offers a virus as the means to be taken in this accomplishment. About 1891, Professor von Behring, of the Marburg Institute, began an experiment with bovine and human tubercular virus. The extensive experiments carried on by von Behring cover every phase of the work accomplished along this line, the details of which are too great to discuss in a paper of this sort. I can only allude to the general results.

* From the *American Veterinary Review.*

The inoculating virus, which Professor von Behring has named "Bovovaccine," "consists of living human tubercle bacilli whose action has been accurately tested. The tubercle bacilli have been dried without losing their vital powers in any way. These dry tubercle bacilli, kept in sealed glass tubes, will retain their action on cattle unchanged for a period of thirty days, after which time, although the immunising power is not entirely lost, it has become so weak as to render it ineffective in the dosage recommended." There is a perfect analogy between this culture of live human tubercle bacilli with that of Jenner's small-pox vaccine, or virus. A serum with live bacilli capable of generating specific disease is called virus. In this case it is human tubercle bacilli in the virus. Dr. von Behring has named the treatment the "Jennerisation" method, in honour of the progenitor of vaccine.

"For the injection the bovovaccine is uniformly mixed with a freshly boiled and cooled 1 per cent. salt solution, which is done according to the following: The entire contents of a tube, 20 immunising units, are placed in a mortar and crushed with the pestle; then 2 to 3 cc. salt solution are added and the mixture is rubbed until a uniform emulsion has been obtained. This emulsion is poured into a graduated cylinder holding 50 cc. The mixture in the cylinder is then made up to 30 cc. and poured into a wide-necked sterilised bottle holding 100 cc. The bottle then contains the inoculation substance ready for use, 2 cc. of which will be the dosage for the first inoculation of a calf. For the second inoculation the dose would therefore be contained in 10 cc. of the fluid, which is five times larger than the first dose. The ready emulsion should be used as soon as possible, at the latest within twenty-four hours after it has been made."

The injection of the virus is easily done. Clip the hair over the upper third of the left jugular vein, cleanse the parts with a 2 per cent. lysol solution, compress the vein with the thumb until a distinct enlargement appears, then insert the canula, and if the vien has been punctured blood will flow freely from the canula; if no blood comes partially withdraw the cannula and reinsert in a slight direction from that of the first. Do not attempt to inject the virus until you are sure the vein has been properly punctured. This much done, unite the syringe with the cannula (which has been previously filled with the virus) and slowly inject its contents into the vein. Immediately after injection the parts should be again cleansed with lysol solution. With this done, nothing further is necessary. The vaccination for tuberculosis, like that for anthrax, is done in two instalments; the second injection follows three months later. The stability of the virus is such that enables it to withstand much of adverse condition without fear of deterioration.

The records of treatment by this method show that a large number of cattle have been inoculated in several States in Germany. This immunising method has received the sanction of the agricultural law in Hessia, Oldenburgh, Mecklenburg, and the kingdom of Saxony. We will not attempt to present details of the result, but suffice to state that the result so far obtained has put the treatment within the sphere of what seems to be positive results. The first publication of Professor von Behring's method appeared during the year 1890. In

the summer of 1892 he held a course at his institute at Marburg, in which a number of veterinarians participated, among others County Veterinaria Schmidt, of Giessen, Hessia. The Hessian Government authorised the latter to test Professor von Behring's method at an estate in the neighbourhood of Grünberg. In order to prove the success of this method of immunisation, he requested Dr. Eber, Dr. Shlegel and Dr. Lorenz to aid him in this experiment. The result was very satisfactory, if we are to take Dr. Lorenz's statement, in which he relates: "After all that I have so far seen, I am under the impression that here we have a method which insures success. This method is of immense value, and surpasses all others as to cheapness and easiness of application. It will supersede all previously proposed methods and render them absolutely superfluous.

"It is needless to mention that the successful suppression of cattle tuberculosis is of vast importance in the breeding of cattle. It would release agriculturists from a burden which has hitherto rested heavily upon them." In the United States this loss amounts to millions of dollars yearly.

"We must also take into consideration and calculate the loss in the production of milk, insufficient assimilation of food, and the lower percentage of nutrient substance contained in this milk, and last, but not least, the threatening danger of disease to humanity."

As evidence of my confidence in Dr. von Behring's immunising virus, I have caused to be inoculated twelve calves, and have placed with that number twelve other calves for control. The first inoculation occurred on July 10. The data of the work on that occasion is brief, but withal interesting. Initial temperatures were taken, which were uniformly at 102 degrees with one exception, which was at 105 degrees; this was in a small four-weeks-old calf. Clinical temperatures were taken daily for five days immediately following the inoculation, and was uniformly at 103 degrees, including the morning of the fifth day, with the exception just noted. In this calf the temperature fell to the normal on the third day. The average reaction was one degree for five days. The calves for this experiment were selected at random in the heart of a tuberculosis district, and in all probability came from herds that are tuberculous. Be that as it may, it is not so essential except from the point of predisposition, which would govern in a measure a varying degree of natural immunity. The experiment will be carried on along the course of natural infection.

## Personal.

At the meeting of the Royal Society of Edinburgh, held on February 19 last, Lieutenant-Colonel Arthur Frederick Appleton, of the Army Veterinary Department, and Mr. Herbert Watkins Pitchford, F.R.C.V.S., J.P., Bacteriologist and Analyst for the Natal Government, were elected as Fellows.

Our readers will be pleased to hear that Principal McCall, whose ankle was fractured accidentally a few weeks ago, is making satisfactory progress towards recovery.

## MOLASSES AND MOLASSED FOODS.

"Crude molasses contains a considerable percentage of both soda and potash salts, and if given in large quantities **they have a noxious effect, giving rise to both bowel and kidney disturbances.**"

"Dr. J. Augustus Voelcker, M.A., B.C., Consulting Chemist to the Royal Agricultural Society of England, in his report on the Woburn Feeding Experiments with molasses, 1900-1901, to the Royal Agricultural Society of England, vol. lxii., p. 301, also states:—

"'There is, however, with its use (the use of Molasses), **a tendency to looseness in the animals,** which must be checked by not giving it in too great a quantity. One pound per day of Molasses among four bullocks was found to be about the limit.'"

"Sugar (molasses or molassed) foods **have the detrimental properties of molasses** in proportion to their contents of sugar."

## MOLASSINE MEAL.

"In the form of Molassine Meal the humic product enters into combination with these salts, **neutralising them and rendering them inert, so that the danger of feeding on large quantities of crude molasses or sugar is avoided.**"

"It seems at once to fatten and harden the animal."

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"The process of manufacture is a patent and requires special machinery."

"As a therapeutic agent **Molassine Meal undoubtedly has a healthy action on the bowels, aiding digestion** and keeping the patient free from worms."

"The humic acid counteracts the ill effects of the potash salts, and **this danger is avoided in the combination called Molassine Meal.**"

"I have found, on high authority, that it (Molassine Meal) is a great tonic and strengthener, **enabling animals to do the heaviest kind** of work and maintaining them in good condition, **replacing equal quantities of oats, beans, maize, &c.** It is an appetiser, and aids in the easy digestion of other foods. It is, itself, easily digested, and **renders a horse thoroughly 'fit.'**"

"In addition to its hygienic properties, which have been described, **it increases the secretion of milk,** also it regulates the digestive functions."

"Allows damaged forage being used up that otherwise would not be eaten."

"The fæces of animals fed on Molassine Meal are nearly odourless as compared with those of others that are getting ordinary food. **In pigs this is most evident, and is of considerable importance** when these animals are kept in towns or villages."

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**Extracts from an article in the "Veterinary Journal," May, 1905, by Colonel J. A. NUNN, F.R.C.V.S., F.R.S.E., D.S.O., C.I.E., Army Veterinary Department.**

[SEE NEXT PAGE.

## The Wonderful Merits of

# MOLASSINE MEAL

PROVED IN THE

## High Courts of Justice.

## INFRINGEMENT OF PATENTS.

**Mr. JUSTICE WARRINGTON, in giving JUDGMENT, said:—**

"It was found that **molasses as a food for cattle could not be used safely,** though it had some very good effects, because of the existence in it of potash salts, which had a deleterious effect on the stomachs of the animals. The inventor said he got over the difficulty by using molasses in combination with peat, by which means he partially got rid of the salts, or converted them into non-deleterious substances. In his opinion, having heard the chemical evidence for this Company, the owners of the patent, he was satisfied that the statement in the specification that the **peat had a chemical effect on the molasses, which prevented it from being so deleterious,** was true.

**As most of the imitation Sugar Foods are named to begin with "MOL," it is important that buyers should see that they are having MOLASSINE MEAL, otherwise they suffer loss through bad results in feeding and financial loss themselves.**

"Then the last defence which he need deal with was the objection that the Patent is not useful. That had been, he thought, abundantly disproved by the veterinary evidence he had heard that morning. . . . Since this patent it is possible and advantageous to give a horse as much Molassine Meal as would cause him to eat three pounds of molasses.

**Special attention is paid to quality. A selection of the finest Moss obtainable from the Yorkshire Moors is used, which is far superior to any other Moss in the world, and the supply of which is controlled by the Proprietors.**

"Then he had the further evidence of Prof. McLauchlan Young, F.R.C.V.S., F.R.S.E., F.R.P.S., F.Z.S., who had made some experiments—not for the purposes of this trial—with various animals in Scotland during last year, and the result of those experiments is, that the food so compounded . . . **is very valuable as a nutritious food.**"

**BUYERS SHOULD INSIST UPON HAVING the Only Sugar Food which may be given safely to Animals in large quantities.**

**Manufactured by HENRY TATE & SONS, Ltd., London & Liverpool.**

*Sold by all Grain and Forage Merchants, and*

## THE MOLASSINE CO., Ltd., 36, Mark Lane, London, E.C.

125, Hope Street, GLASGOW. 43, Dame Street, DUBLIN. And other Addresses.

It is reported in the *North British Agriculturist* that Mr. John Gilruth, M.R.C.V.S., Bacteriologist and Principal Veterinary Officer to the Government of New Zealand, has resigned his position on account of the refusal on the part of the Government to sanction certain of his regulations. The stock-owners of New Zealand, and, we venture to add, many members of the veterinary profession in this country, and certainly those of his own staff, most devoutly hope that the matter will be amicably arranged, as no man has done more for the well-being of the agricultural community in New Zealand than Mr. Gilruth.

It is only a little more than a decade ago that veterinary science was a thing almost unknown in that country, and at the present moment the organisation in the service of the Public Health of the Veterinary Department, especially in regard to the inspection of meat, can compare favourably with that of many Continental countries.

Although not yet perfect, the strides made in so short a time have been very gratifying, and the Government veterinary staff, at the close of 1905, consisted of no less than sixty members, twenty-seven being qualified members of the College. Public abattoirs have been erected in almost all the large towns in New Zealand, and the knowledge that all exported meat, so much of which comes to England, is inspected by skilled veterinarians is in itself a safeguard to the consumer.

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## Reviews.

Diseases of the Horse's Foot. By H. Caulton Reeks, F.R.C.V.S. 458 pages, 168 illustrations. Price 10s. 6d. net. Published by Ballière, Tindall and Cox.

Some four years ago Mr. Reeks gave the profession an interesting little work on "The Common Colics of the Horse." His second attempt at authorship has taken the form of a very useful, practical, and serviceable manual with the above title. We are sure that the reception accorded to this will be fully as good as that which was given to his previous book.

The diseases of the horse's foot must interest every veterinary practitioner, whether he lives in the town or in the country, and Mr. Reeks has the happy faculty of rendering his subject interesting, readable and useful.

In some twelve chapters the whole of the diseases of the horse's foot are thoroughly dealt with, their anatomical and physiological characteristics are minutely described, and numbers of photographs demonstrate clearly numerous points on faulty conformation, diseases of the bones and joints, and all kinds of methods in common vogue for operative purposes. The illustrations are very graphic, and are a great aid to the descriptions.

Individual cases are quoted from the various veterinary journals, and full acknowledgment is given wherever outside sources are drawn upon. It is particularly pleasing to note that the author has hardly in any instance had to go outside the British veterinary profession to find confirmation for any theories which he may have brought forward.

It is an all too common practice to cite only the foreigner and omit the good work done at home. The quotations show the infinite pains which the author has taken to read all the up-to-date literature, and the descriptions are tempered by a very evident practical knowledge of his subject. It would be invidious to pick out any particular chapter for a special quotation. The whole book is good.

It is neatly bound, excellently printed, and should be added without delay to every veterinary surgeon's bookshelf.

THE DOG-BREEDER'S POCKET BOOK. By F. T. BARTON, M.R.C.V.S. Price 5s. net. Published by Everett and Co.

In a small pocket book of some 200 pages Mr. Barton has grouped together a number of practical hints likely to be of use to the breeder of show dogs. He has included a very well-written chapter on the principal points of each respective breed, together with advice to the amateur as to what to avoid when purchasing a dog. A photograph is given of each breed, whilst here and there advertisers are allowed to intersperse their stud and other advertisements.

The Kennel Club rules occupy some 20 pages, and some 50 pages are devoted to common injuries and ailments, and first-aid treatments. Altogether the book is undoubtedly a handy little compendium, which is likely to prove of service as a work of reference to the amateur and professional dog-breeder.

REPORT OF THE BOMBAY VETERINARY COLLEGE FOR THE YEAR 1904-5.

The Principal of the Bombay Veterinary College, Colonel J. Brodie Mills, I.C.V.D., has issued his report for the past year, the result of the examinations being very satisfactory.

At the beginning of the year there were eighty-six students on the rolls of the diploma course, and of these forty-two were in Class A, twenty-three in Class B, and twenty-one in Class C. Thirteen eventually graduated.

Of the patients some 2,809 were admitted in 1904, including 712 horses, 1,664 cattle, and 433 dogs. In the out-patients' department 1,610 animals were treated, and the number of operations performed during the year was 317.

From the study of the report we gather that the Bombay Veterinary College is doing very useful work.

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A new journal, *Zeitschrift für Infektionskrankheiten, Parasitare Krankheiten und Hygiene der Haustiere*, edited by Professors Ostertag of Berlin, Joest of Dresden, and Wolffhügel of Buenos-Aires, is about to make its appearance. It is specially devoted to the parasitic infections and to the hygiene of the domestic animals. It comprises modern theories of hygiene, prophylaxis of diseases, epidemiology, and the biology of parasites. The journal will contain original articles, together with extracts and reviews of the latest literature on the subject. The publication will not be brought out at any regular date, and the price is 25 marks (£1 5s.) per volume of 480 pages.

# Translations and Extracts.

## THE IMMUNISATION OF SHEEP TO FURNISH POLYVALENT SERUM AGAINST BLACK QUARTER AND ANTHRAX.

BY PROFESSOR V. GALTREP, LYONS.

Two sheep, one a country-bred and the other a North African, were given inoculations of anthrax culture in doses of increasing virulency; the first two consisting of a mixture of the culture and Lugol's solution. At the third injection both were able to stand 2 cc. of a culture that killed both rabbits and guinea-pigs in very small doses. At the sixth inoculation they resisted 10 cc. that killed a goat with a 1 cc. dose. The African sheep was less affected than the French one. The fifth inoculation was made with a mixture of a very virulent culture of black quarter and a solution of iodine. There was slight local disturbance in the French sheep, the African one showing great resistance. The twenty-five and twenty-six inoculations consisted of a mixture of both virus, and were well tolerated. These twenty-six inoculations were made at intervals, varying from fifteen days to three weeks, and when completed the two sheep, which were in good condition, furnished a polyvalent serum which protected rabbits and guinea-pigs when inoculated twenty-four hours afterwards both with anthrax and black quarter.

(*Journal de Médecine Vétérinaire.*)

## VON BEHRING'S PREVENTIVE INOCULATION FOR TUBERCULOSIS IN CATTLE.

BY DR. LORENZ, DARMSTADT.

On August 19, 1903, the Minister of the Interior of the Grand Duchy of Hun issued a circular to farmers explaining the results of Von Behring's method, and asking for assistance to carry out control experiments, and on November 16 of the same year a similar circular to the veterinary sanitary officer of the Duchy.

By the end of October, 1904, about 550 animals over four months, and 250 under, were vaccinated, and, in addition, about 150 received a single injection. Out of this number, which represented over 1,700 operations, there was not a serious accident.

In 138 cases the temperature was taken after the first, and in ninety-six after the second, inoculation; in one case a rise of temperature was noticed after the first.

At the end of December four of the protected animals had died, and eight had been slaughtered. Only one of those which had died was examined and it proved healthy; of those slaughtered six were examined, four were healthy and two diseased. The vaccination was practised in two large herds that had been previously tested with tuberculin and in one a reaction of 80, and in the other 100, per cent. was given. On the first in January, 1904, there were eleven non-reactors, varying from six to eighteen months old, five were vaccinated, and six kept as controls.

In December, 1904, the whole were tested with tuberculin. The five vaccinated showed no reaction, while three of the controls reacted in a marked degree.

In December seventy-eight vaccinated animals were tested; fifty-one (64·5 per cent.) gave no reaction, eleven (14·1 per cent.) reacted slightly, sixteen (20·5 per cent.) in a marked degree. Von Behring has already noted this reaction to tuberculin as a result of vaccination, but considers it to be merely the organic reaction that takes place when the subject is not yet immune.

(*Zeitschrift für Thiermedicin.*)

## SOME NOTES ON RABIES.

BY E. BERTARELLI AND G. VOLPINO.

THE authors carried out series of experiments with the object of showing that the results were the same with natural rabies (*raye des rues*) and artificial (*virus de passage*). The material was emulsified in a salt solution, and filtered through Berkefeld's Nos. 5 and 6 bougies. The filtrate, from whatever source it was derived, was always virulent.

According to Remlinger, Celli, Blasi-Wakelin, Barrat, and Vestea, when filtered virus was used with rabbits, in a certain number of cases there was no result, and with all the period of incubation was longer than with primitive virulent material, but the authors have never encountered the "rabic poison" described by Babes and Remlinger.

This prolonged period of incubation and resistance points to a diminution of virulence by rarefaction of the organism. Only the first filtrate is virulent if the bougie is scraped, and the emulsion is again cleared of this new virulent material. A second filtrate is obtained which is never active, even if the bougie is washed in it six or eight times.

This result is difficult to explain. The material retained by the filter is virulent, and this may perhaps be accounted for by its being attracted to the substance out of which it is composed, or by the organism not being able to pass through the pores; but a repeated washing of the filter does not give a virulent liquid. It would appear that the theory of attraction cannot be maintained, and the authors fall back on the second theory. The fact that the virus will pass through some filters does not entirely alienate the theory of the parasitic nature of Negri's corpuscles. The parasite may not consist of the whole mass that is stained red by Mann's process.

(*Centralblatt für Bakteriologie.*)

## THE PREVENTION OF BOVINE TUBERCULOSIS.

BY PROFESSOR KLIMMER, DRESDEN.

THE statistics of the extension of tuberculosis in the kingdom of Saxony will show the loss caused by this disease. From those furnished by abattoirs, it would seem that a third of the cattle are infected, and that the percentage is increasing.

| Years ... | 1896. | 1897. | 1898. | 1899. | 1900. | 1901. | 1902. | 1903. |
|---|---|---|---|---|---|---|---|---|
| Percentage | 26·72 | 29·13 | 30·46 | 39·27 | 30·74 | 26·39 | 30·98 | 31·16 |

If those that reached to the tuberculin test were included the figures would be doubled.

The author has tested 259 animals belonging to eight different owners, of which 79 per cent. reacted. In one large herd 80 per cent. of these above three years of age, and 67 per cent. of these below, reacted. In this particular herd the strictest sanitary precaution, such as isolation of the calves feeding with milk from tested cows and the turning of young stock out to grass from May to November, had been enforced for the past five years.

This prevalence of tuberculosis causes incalculable loss, it being estimated that in 1905 the *depreciation* in meat alone was £27,500, but if the falling off in milk, loss of condition, &c., be taken into account, it would be infinitely greater.

The author reviews Behring's vaccination, and Bang and Ostertag's methods of prophylaxis, but comes to the conclusion that its prevention lies in the hands of the small owner.

The State can interfere both directly and indirectly by ordering the destruction of infected animals that constitute a public danger, such as those suffering from advanced disease of the lungs, udder, uterus, or intestine, the use of the milk being prohibited in case of udder disease.

It is also strongly recommended that restriction be placed on the sale of tuberculin, and that it should only be obtainable on the written order of a veterinary surgeon or medical man.

The indirect measures suggested are the free testing of all bulls.

(*Berliner Tierarztliche Wochenschrift.*)

## ON THE DIFFERENTIATION BETWEEN SURRA AND THE OTHER FORM OF TRYPANOSOMIASIS.

BY MM. SAVERAN AND MESNIL.

Surra originally was recognised in India, but so far has not been studied in any European laboratory in comparison with the other forms of trypanosomiasis. Morphologically the parasite is identical with that found in the Mauritius, but appears to be more virulent, killing rats and mice in six days, dogs twelve, guinea-pigs fifty-seven, rabbits twenty-seven.

Vallea and Panisset state that calves which survive an attack of Mauritius surra are immune against a second attack, also against African mbori, and the Indian variety.

The authors are of opinion that the Indian and Mauritius forms of surra are identical. They also state that blood taken from oxen thirty-four days after inoculation with Indian virus was inert with dogs, and that blood from a rat cured of *Trypanosoma lewisi* failed to produce the disease in another rat.

(*Comptes Rendus de l'Academie des Sciences*, vol. cxi.)

## CALCAREOUS CONCRETIONS IN MUTTON.

BY GLAGE.

CALCAREOUS concretions are often found in the muscle of the head and the heart of the sheep. They are about the size of a pea, hard, and white outside. When split open they are found to contain a white substance, the consistency of mortar, or else a curious green material, but more commonly the former.

Out of 2,198 sheep examined the author found 32 infected, or 1·45 per cent.; of these 22 had the concretion in the heart, 7 in the head, and 3 in both. They varied in number; in 20 cases only a single one, 16 in the heart, and 7 in the muscles of the head.

The cause of these concretions is rather obscure, as in the majority there is nothing visible on microscopic examination; in five, hooks of the *Cysticercus ternicollis* were discovered.

(*Zeitschrift für Fleisch und Milchhygiene.*)

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## STREPTOCOCCUS OF STRANGLES.

BY SENOR ANGELICI.

THE streptococcus of strangles cannot be distinguished from any other variety by cultivation. In the filtrate of cultures in ordinary broth it will not grow till a few drops of fresh broth are added, but this filtrate is a good medium for the growth of the pyogenic and charbon organisms, and it will grow and thrive in the filtrate of them. It grows well in Marmoreck's bouillon, and 2 cc. of the filtrate will give rise to temporary disturbance in white mice; it also exercises hæmolytic properties on the blood of the rabbit and hare.

Hare's serum kept for an hour at a temperature of 55° C., and filtered after twenty-four hours in the incubator, loses its hæmolytic action for hare and rabbit blood, and is inert in white mice. Agglutination takes place with hare and rabbit's blood in the proportion of from the 50 to the 1,000, and with immunised hare blood in from the 10,000 to the 20,000. The immunised hare serum causes the agglutination much quicker than any other streptococcus. The strangles streptococcus is no doubt a specific one, but the serum of inoculated hares confers no immunity against other varieties.

(*Clinica Veterinaria*).

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## ALBUMINURIA IN CATTLE FROM FEEDING ON ACORNS.

BY M. E. GOBILLE (WIGNNEHIES), NORD FRANCE.

ALTHOUGH somewhat old, perhaps these notes may be of some use. During the winter of 1893-94 forage was very scarce in Northern France on account of the dryness of the summer, and many farmers supplemented their scanty supply with acorns, which gave rise to disastrous results when given in too large quantities.

CASE 1.—A herd of twenty-three cows for three months had been getting a mixture of beetroots and linseed, with about a litre of acorns, and these were attacked with nephritis and diarrhœa. The first had two different attacks of hæmaturia, but in the second it lasted for eight days. The urine, which was tested several times, showed the presence of considerable quantities of albumen, which varied in proportion to the amount of blood passed. The acorns were stopped, and in three weeks the cows had recovered.

CASE 2.—The farmer had two dry cows that he was fattening, which for six weeks had been getting five litres daily of acorns; his other milch animals one litre. One of these cows had a slight attack of hæmaturia, which disappeared when the acorns were stopped. The other had an acute attack, the urine being frothy dark red, and containing about three grammes per litre of albumen. The acorns were stopped, and the hæmaturia disappeared; but the albuminuria continued, and the animal fell off in condition, and was ultimately sold, as the owner lost patience with her. No doubt, if she had been kept and well nursed she would have recovered.

CASE 3.—A ten-months-old heifer had been getting two litres of acorns daily for six weeks, during which time she had an attack of hæmorrhagic enteritis, but recovered. She was given bicarbonate of soda in linseed gruel, with the object of neutralising the tannic and gallic acids in the acorns, also whey *ad lib.* After she had recovered the owner again gave the acorns, with the result of a recurrence of enteritis and nephritis.

In young animals the attack is mild, and in milking cows the nephritis is easily curable; but in dry, fattening ones it is dangerous, as there is no drain on the system or channel of elimination in the milk.

(*Revue Générale de Médecine Vétérinaire.*)

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## PARASITIC ANEURISM OF THE ANTERIOR MESENTERIC ARTERY IN FOALS.

BY MIECKLEY, BEBERBECK.

FREQUENT cases of foals dying from parasitic aneurism have come to the author's notice in the Trakehnen and Beberbeck studs. The water is obtained in these two establishments from springs, which is brought in pipes for 1½ kilometres to stone troughs in the stables and paddocks.

The cases occurred chiefly in foals under a year old. The symptoms were characteristic, viz., malaria, partial sweats, fever, injected conjunctivæ and colic. The animals hung back on the halter, with the head stretched out and the neck nearly horizontal, and the back arched. There was marked general disturbance, slight dilatation of the pupil, short and catchy respiration, and the pulse very quick and thready. The case rarely lasted more than thirty-six hours, and was invariably fatal.

On *post-mortem* examination there was effusion of blood, especially into the jejunum and ileum, the coats of which were tumified and of a deep red colour for a foot to a foot and a half in length, and appeared to be paralysed. The aneurism was at the root of the mesenteric artery, and varied from the size of a nut to that of a fowl's egg, and contained a hard, fibrinous, blood-stained mass, in which about sixty strangles were embedded. There were traces of slight peritonitis.

It is pretty well agreed to that the parasites gain access to the system in the drinking water, and, in fact, the larvæ were discovered in it by Professor Ostertag, of Berlin, and Dr. Paulmann, of Cassel. The water is now filtered, and since 1899, when the apparatus ("Messrs. Brand's," of Cassel) was installed, the mortality has entirely ceased.

(*Archiv. für Tierheilkunde.*)

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## Letters and Communications, &c.

Mr. H. B. Eve; Colonel Nunn; Mr. Aggio; Mr. Willett; Colonel Pitchford; Mr. Routledge; Prof. Bradley; Mr. Linton; Mr. F. L. Lovel; Lieut. Leaning; Major Marriott; Capt. Cochrane; Mr. Webb; Mr. R. L. Green.

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## Books and Periodicals, &c., Received.

The Driving World; The Creamery Journal; The Tropical Agriculturlist; Journal of the Royal Army Medical Corps; Cape Agricultural Journal; American Veterinary Review; Department of Agriculture (Ireland); Board of Agriculture.

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NOTE.—All communications should be addressed to 8, Henrietta Street, Covent Garden, London, W.C. Telephone, 4646 Gerrard. Telegrams, "Baillière, London."

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